DOCUMENT RESUME

ED 450 850 JC 010 231

TITLE	Students Who Transfer between Oregon Community Colleges and Oregon University System Institutions: What the Data Say.
INSTITUTION	Oregon Univ. System, Eugene. Office of Academic Affairs.; Oregon Dept. of Community Colleges and Workforce Development, Salem.
PUB DATE	2000-11-17
NOTE	71p.; Submitted to the Joint Boards of Education by the Joint Boards Articulation Commission. For the 1999 Plan for Course and Credit Transfer, see ED 430 465.
PUB TYPE	Reports - Research (143)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	*Articulation (Education); *College Transfer Students; *Community Colleges; *Educational Mobility; Educational Policy; *Higher Education; Transfer Rates (College)
IDENTIFIERS	*Oregon

ABSTRACT

This report provides a follow-up to the 1999 "Plan for Course and Credit Transfer Between Oregon Community Colleges and Oregon University System Institutions" by specifically responding to its call for ongoing data-collection and research efforts. The purposes of this report are as follows: (1) to summarize the results of four years of data-matching efforts by the Oregon University System (OUS) and the Department of Community Colleges and Workforce Development; (2) to discuss the implications of these data for policymakers as well as institutional practitioners; and (3) to provide the context for these recent Oregon transfer-students data by offering a review of current and relevant research literature. In a transcript analysis of 504 students enrolled in the 4 public postsecondary institutions in the Portland area, more than three-fourths of all students fell within 1 of 7 dominant patterns of attendance, but overall 74 different patterns of enrollment were identified. About 83% of credits submitted for transfer were accepted. The number of community college students transferring to OUS increased from 1996-97 to 1998-99. Community college transfers generally outperform first-time freshmen in terms of grade point average (GPA) but lag slightly behind other transfer students. Appendices contain student enrollment and transfer data tables. (JA)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 450 850

Students Who Transfer Between Oregon Community Colleges and Oregon University System Institutions: What the Data Say

Submitted to the Joint Boards of Education
by the Joint Boards Articulation Commission
(http://www.ous.edu/aca/jbac.html)

November 17, 2000

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

James C. Arnold

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Prepared by the

Oregon University System
Office of Academic Affairs
P. O. Box 3175
Eugene, OR 97403
Contact: Jim Arnold [541] 346-5722
<jim_arnold@ous.edu>

and the

Oregon Department of Community Colleges and Workforce Development
255 Capitol Street NE
Salem, OR 97310

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TC010231

BEST COPY AVAILABLE

Students Who Transfer Between Oregon Community Colleges and Oregon University System Institutions: What the Data Say

Executive Summary

This report provides a follow-up to the 1999 "Plan for Course and Credit Transfer Between Oregon Community Colleges and Oregon University System Institutions" by specifically responding to its call for "ongoing data-collection and research efforts." Specifically, the purposes of this report are to:

- summarize the results of four years of data-matching efforts by the Oregon University System and the Department of Community Colleges and Workforce Development,
- discuss the implications of these data for policymakers as well as institutional practitioners, and
- provide the context for these recent Oregon transfer-student data by offering a review of current and relevant research literature and outlining the dominant topics in the student-transfer arena.

Findings

The belief: Students move in a lockstep fashion from high school to community college to baccalaureate-granting institution.
The data and research say...

- In a transcript analysis of 504 students enrolled in the four public postsecondary institutions in the Portland area, over three-fourths of all students fell within one of seven dominant patterns of attendance, but overall *74 different patterns of enrollment were identified.*
- About 1,100 students were enrolled in both a community college and an OUS institution each term during the 1997-98 academic year. These dual enrollments are assumed to be on the rise with the increasing number of programs encouraging such student behavior.
- A "swirling dynamic" was identified at Arizona's community colleges and four-year institutions.
- Ten identifiable community college attendance patterns were identified in data from the National Longitudinal Study of the High School Class of 1972 (with 12,332 students in the sample).

The belief: Community college students experience significant credit loss when they transfer to a four-year campus.
The data and research say...

- In 1997-98, the average number of credits transferred in to an OUS institution by AA/OT recipients was 99. (A minimum of 90 credits is required for the AA/OT degree.)

- In a transcript-analysis study in Oregon, the average number of credits earned by transfer students at a Portland metropolitan area community college was slightly over 91; of these, about 83% (76 credits) were accepted by Portland State University.
  - The reasons for non-acceptance of credits included: low grade, developmental/remedial-level coursework, professional-technical coursework, duplicate course, and over maximum number of credits allowed for transfer.
  - Credit loss may be seen as "a function of non-transferable credits being submitted to the university."

The belief: The number of students transferring to a four-year campus from a community college is declining.
The data and research say...

- In Oregon, between 1996-97 and 1998-99, the number of community college students transferring to Oregon University System institutions increased slightly.
- In California and Washington, between 1996-97 and 1998-99, the number of admitted community college transfers declined slightly.
- In 1998-99, 11,595 OUS students had attended a community college the previous year, up 7% (from 10,820) the previous year.
- In 1998-99, 1,037 OUS students earned an Associate of Arts/Oregon Transfer (AA/OT) degree the previous year.
  - The 1,037 AA/OT transfers represent:
    - 9% of "all transfers" in 1998-99
    - 28% of admitted transfers
    - 54% of all AA/OTs awarded the previous year.

The belief: Community college transfer students generally demonstrate lower academic performance than students who begin at a four-year campus.
The data and research say...

- "Transfer shock" is the term used to designate the presumed drop in grade point average (GPA) of a community college student after transferring to a four-year institution; evidence supporting this notion is mixed.
- Before-and-after comparisons of Oregon community college transfer student GPAs are unavailable; however, in 1998-99, the GPA of Oregon community college transfer students in all OUS courses was 2.94. First-time freshmen had a GPA of 2.80 and other transfer students had a GPA of 3.06.
- A similar trend in GPAs was noted when data were analyzed in various discipline-to-discipline comparisons. More specifically, community college transfers generally outperform first-time freshmen and lag slightly behind other transfer students.

The belief: Community college students in general, as well as community college students of color, persist and graduate at lower rates than students who begin at a four-year campus.

The data and research say...

- Oregon community college transfer students overall (who come to OUS with 45 to 89 transferable hours), complete their programs with a six-year graduation rate of about 62%. First-time freshmen who persist through one year of college-level work have a six-year graduation rate of 65-68%.
- Black, Native American, and Hispanic students, whether community college transfers or students who originally started at a four-year campus, graduate at lower rates than Caucasian and Asian American students, though small sample sizes may lead to an unclear picture of what is actually happening in this area.

Recommendations

The Oregon data-match project is still in its infancy. Data-collection efforts need to be continued and expanded in order to make more informed policy decisions in the area of articulation and transfer. The important recommendations from this study include:

- Follow-up on students in Oregon who earn the Associate of Arts/Oregon Transfer degree should be enhanced, to include tracking of these students more than one year past their degree (and possibly gathering information about those students who choose to not attend a four-year institution to see how their degrees are being utilized).

- Data-collection efforts should be expanded to include follow-up on students by academic major pursued after transfer. The academic programs in which transfer students enroll may be able to inform curricular decisions at the campus level in both sectors.

- Data-collection efforts on students simultaneously enrolled in two-year and four-year campuses should be expanded. These students are so enrolled as part of official programs as well as by individual student choice. Not enough is known about these students at this time to make well-informed policy decisions.

- Oregon University System and Oregon community college administrators and data experts should work together to develop the (legal and ethical) means to track the success of individual students (and small student cohorts) after they transfer. Such tracking is currently problematic given laws that address students' rights to privacy; nonetheless, such information would be helpful in making campus decisions that could affect the success of future generations of transfer students.

Students Who Transfer Between Oregon Community Colleges and Oregon University System Institutions: What the Data Say

Introduction and Purpose

In 1999, the Joint Boards of Education accepted and endorsed a report on transfer and articulation that was subsequently presented to the 70th Oregon Legislative Assembly. That document, entitled "A Plan for Course and Credit Transfer Between Oregon Community Colleges and Oregon University System Institutions" (Oregon University System, 1999), had been mandated in HB 2387 (ORS 341.425) as passed by the 69th Legislative Assembly. Concerns about the viability of the student transfer process, especially as it pertained to Oregon's community college students who wished to transfer to an Oregon University System campus, had led to the legislation and the subsequent Joint Boards report.

The Plan stipulated, and then fully substantiated, two major premises about the student transfer process in Oregon, namely that (1) course and credit transfer among the public institutions is a successfully completed process in the overwhelming majority of cases, and (2) an effective infrastructure is currently in place to monitor as well as address course and credit transfer issues when they arise. Communication and collaboration efforts between the community colleges and university campuses, the two major themes of the report, were exhaustively documented to demonstrate the effectiveness of the present system.

One of the concluding elements of the Plan, listed in the "future directions" section, called for "ongoing data-collection and research efforts" – in order to continue monitoring the course and credit transfer process and to guide future policy making in this area. This current document has been prepared to update the Joint Boards on recent research and data-collection activity.

Specifically, the purposes of this report are to:
(1) summarize the results of four years of data-matching efforts by the Oregon University System and the Department of Community Colleges and Workforce Development,
(2) discuss the implications of these data for policymakers as well as institutional practitioners, and
(3) provide the context for these recent Oregon transfer-student data by offering a review of current and relevant research literature and outlining the dominant topics in the student-transfer arena (this review is provided in its entirety in Appendix A and is summarized briefly in the following section).

The Context: Briefly

Since the inception of community colleges, educational researchers and policy analysts have studied the transfer process – and the role (one of many) the community colleges have assumed in the preparation of students for transfer to a baccalaureate-granting institution. Several topics have been of interest, such as

- the proportion of students at community colleges who transfer and ultimately pursue a baccalaureate degree ("transfer rate");
- the proportion of credits earned at a community college that ultimately are accepted by the transfer institution (credit acceptance/credit loss, or "transfer efficiency");
- patterns of attendance utilized by students as they move between community colleges and four-year institutions;
- how well students who transferred to a community college perform at the four-year institution (especially as compared to the students who are "native" to the four-year campus); and
- persistence to graduation at the baccalaureate level by transfer students.

Appendix A of this report provides a comprehensive review of the literature on these, and other, topics – a review that is intended to provide the "big picture" of the transfer process for community college students in this country. It should be noted that the sum of these research studies present a complex and, at times, confusing picture of the transfer process. Taken together, the studies discussed in the appendix provide the following list of salient points:

- "Transfer rates" are not computed in a standardized fashion and, therefore, are difficult to compare and assess. Nevertheless, there is some general agreement that the rate and/or number of transfer students from community colleges to baccalaureate-granting institutions has been declining for some time. Many possible explanations have been offered, from the increased focus on community colleges and their students on professional technical programs (and more immediate employment opportunities) to changing demographics.

- The issue of "credit loss" is a real one for transfer students, but studies show a variety of legitimate reasons for the lack of credit acceptance on the part of the receiving institution. Another way to look at this is that "non-transferable courses are being submitted to the university."

- The notion of the "linear transfer" is outdated. Students do not typically follow the path of high school, to community college, to four-year campus in a linear fashion. Enrollment patterns are very complex, and many students typically attend multiple institutions, sometimes concurrently, in pursuit of their academic goals. Research questions and policy decisions based on the concept of "linear transfer" should be considered suspect.

- There is much literature to support the validity of the "transfer shock" effect, meaning that the academic performance of a transfer student will commonly slip the first term after transferring to a four-year campus. There is also considerable evidence that after the first term, the academic performance of a transfer student rebounds and that he or she may ultimately perform as well as a "native" student on the four-year campus.

- Many researchers continue to assert that students who first attend a community college are disadvantaged if they ultimately decide to pursue a bachelor's degree. That is, while the two-year college may open up access to postsecondary education, it may not provide equal opportunity in leading to a four-year degree. This issue is one that continues to be debated.

- The persistence of transfer students at four-year institutions is not much studied. The data that exist in this area suggest that, as with native, residential students, "academic and social integration" into the structure of the four-year campus are key factors. One study indicated that student intent, academic performance, and academic satisfaction were all key in keeping a transfer student on track in pursuit of a bachelor's degree.

Given this very brief look at the research in this area, the data specific to the state of Oregon are now presented.

Methods and Data Sources

The data utilized in this report, presented to assess the status of transfer student activity and performance in the state of Oregon, are collected by the Oregon Department of Community Colleges and Workforce Development (CCWD) and the Oregon University System (OUS). Each year (since 1995-96), CCWD and OUS staff have collaborated in the data-match project whereby the social security numbers (SSNs) of all community college students and all OUS students are compared. Information about students who were community college students one year and then were enrolled at an OUS institution the next may be extracted from matching these SSNs. In comparing records from the two sectors in this manner, the definition of "transfer student" is greatly expanded over the individual OUS institution definitions (which define transfer students as those *admitted* students who presented a minimum number of hours of college-level work as evidence of eligibility for admission). Using these data, it is possible to obtain a broader picture of the scope of transfer activity, as well as to better gauge the performance of students once they make the transition from community college to university-level work.

In the appendices and tables that appear in and accompany this report, data from each of the last four years are summarized. However, not all data elements are available for all four years of the data-match project. The ability of community

colleges to synthesize and forward their data to CCWD improves each year, as does the expertise of the OUS and CCWD personnel charged with sorting and matching the data. Every year of the data-match effort, the reliability of these data is believed to increase.

Results

Appendices I to XIV are attached for readers who desire the greatest level of detail possible. *Summaries* of these data are presented in this section and every effort has been made to extract the most interesting and important aspects of these data.

All Oregon Community College Students Transferring to an Oregon University System Institution: Total Number, and Proportion by Gender, Race, and Residency Status

The number of students who were enrolled at an Oregon community college one year and then enrolled at an Oregon University System institution the next year are listed, year by year, and institution by institution, in Appendix I. These data are summarized below in Table 1. For the four years included in this study, the *total* number of students "transferring"[1] are listed in the "All Transfers" column and are compared to the total number of "Admitted Transfers" (from Appendix XII) for the academic year.

Table 1. Comparison of "All Transfers" (Oregon Community Colleges to Oregon University System Institutions) per Academic Year to "Admitted Transfers" (from Oregon Community Colleges)

Academic Year[2]	All Transfers[3]	Admitted Transfers
1995-96	10,359	3,330
1996-97	10,255	3,158
1997-98	10,280	3,327
1998-99	11,595	3,687

[1] The word "transferring" appears in quotes since the definition used here is not the official designation of a "transfer student," which is typically an *admitted* student whose basis for admission is an evaluation of academic work completed at a community college. For the purposes of this report, and as indicated above, the definition of transfer student is an individual enrolled one year at an Oregon community college and then is enrolled the next academic year at an Oregon University System campus, regardless of enrollment status or number and type of credits taken.

[2] The year the student enrolled in OUS (on any campus for any course). Students attended an Oregon community college the previous academic year (any campus, any level of activity).

[3] Unduplicated count of all students at all levels.

Of all transfer students, the following had completed some kind of postsecondary program at the community college before enrolling in an OUS institution (from Appendix II):

Table 2. Community College Program Completers[4] Enrolled at an OUS Institution the Following Year

Academic Year	Program Completers
1995-96[2]	1,316
1996-97	1,476
1997-98	1,458
1998-99	1,575

Other aspects of Oregon community college transfers include:

- In an unduplicated count of all 1998-99 Oregon community college transfer students (Appendix VII), 54% are female and 46% are male.

- In an unduplicated count of all 1998-99 Oregon community college transfer students (Appendix VII), 95% are Oregon residents and 5% are non-residents (for fee purposes).

For 1998-99, the racial/ethnic distribution (in percentages, from Appendix VI) of all Oregon community college transfer students is presented in Table 3.

Table 3. Comparison of Race/Ethnicity of All 1998-99 Transfer Students (Oregon Community College to Oregon University System Institution) to All Community College Students and All OUS Students

Race/Ethnicity	1998-99 Transfer Students	1997-98 All OR CC Students	1998-99 All OUS Students
Asian	7.1%	2.8%	6.1%
Black	1.3%	1.3%	1.5%
Caucasian	74.6%	63.4%	73.0%
Hispanic	3.3%	5.3%	3.1%
Native Amer	1.4%	1.4%	1.3%
International	1.9%	2.0%	5.8%
Unknown	10.3%	23.8%	9.1%
Total	100.0%	100.0%	100.0%

[4] A "program completer" in this context is a student awarded a certificate or diploma for postsecondary work; this does not include high school, GED, or other pre-postsecondary work at a community college.

Further, in an unduplicated count of 1998-99 OUS students (Appendix VII):

- 4,244 students were transfer students from sources other than Oregon community colleges
- Of these 4,244, 1,274 were from other Oregon colleges and universities and 1,958 were from out of state.
- These 4,244 students transferred into an OUS institution representing a total of 426 campuses from around the world.

These data indicate that, overall:

- Transfer student activity from year to year is quite stable in Oregon; the overall number of admitted transfer students and "all transfers" has risen modestly between 1996-97 and 1998-99.

- A majority (54%) of transfer students are female, and the overwhelming majority (95%) of the Oregon community college to OUS transfer population are Oregon residents for fee purposes.

- In terms of the transfer of students of color from the community college campuses, OUS institutions attract these groups in at least the proportion in which they are represented on the two-year campuses.

- In addition to Oregon community college transfers, OUS also attracts a large number of other transfer students, both from within Oregon and outside the state.

Oregon Community College Students Completing an Associate of Arts/Oregon Transfer (AA/OT) Degree: Total Number, Proportion and Average Credits Transferred – AND – Lower-Division Collegiate Students Transferring

For the four years of the data-match project, Table 4 lists (from Appendices III and IV) the numbers of AA/OT-bearing students who have appeared on OUS campuses the following year (as well as the percentages of all AA/OT degrees awarded the previous year). The average number of credits presented by AA/OT students to OUS institutions upon transfer are available for two of the years of this project. Both the number and proportion of transfer degree students have remained stable, as well as the number of credits transferred (which is slightly above the minimum number required for the AA/OT degree itself).

Table 4. Number of Students Completing an Oregon Transfer Degree One Year and Then Enrolling in an Oregon University System Institution the Next Academic Year

Academic Year	AA/OTs Transferring In	% of All AA/OTs	Average Credits Transferred In
1995-96	895	48%	
1996-97	1,101	56%	98
1997-98	1,015	55%	99
1998-99	1,037	54%	

Most Oregon community college students transfer to an OUS institution without having completed a community college degree, of course. In fact (see also Table 1), the total number of AA/OT transfers are about 10% of "all transfers" and less than one-third of "admitted transfers."

The total number of students who were enrolled in a lower-division collegiate course or program are reflected in Table 5 (from Appendix V).

Table 5. Number of Lower-Division Collegiate (LDC)[5] Students Enrolled at an Oregon Community College One Year and Then Enrolling in an Oregon University System Institution the Next Academic Year

Academic Year	LDC Transfer Students	Total LDC Students	% LDC Students Transferring
1997-98	7,767	54,895	14%
1998-99	8,202	57,415	14%

These data, then, indicate that:

- The number of students having completed the AA/OT who transfer to OUS is essentially stable and represents approximately 55% of all students who earn the transfer degree in any given year.
- The percentage of students enrolled in a lower-division-collegiate program for any year, and who then transfer, is also essentially stable (but transfer at a lower rate than those students having earned a transfer degree).

[5] Lower-division collegiate students are those who have a declared major, indicating their intent to eventually transfer to a baccalaureate-granting institution.

- The number of AA/OT graduates who appear on an OUS campus in a year other than the one immediately following their degree is unknown (although the assumption is that more of these students do eventually appear).

Oregon Community College Students Transferring to an Oregon University System Institution: Academic Performance After Transfer

Many first-time freshmen, transfer students, and other continuing students are in need of remedial coursework at some point. Table 6 (from Appendix VIII) outlines the total number of Oregon community college students who enroll in remedial mathematics courses during their first year at an OUS institution. Data such as these are important for estimating the level of preparation and eventual success of students who pursue a bachelor's degree. Adelman (1999, p. vii) has found that the highest level of math studied in high school has "the strongest continuing influence on bachelor's degree attainment." That is, completing a high school course beyond second-year algebra more than doubles the chances a student will ultimately complete a baccalaureate degree. (Consequently, it could be argued that the more students are in need of math remediation, the less likely they are to complete a degree.)

Table 6. Oregon Community College Students Taking Remedial Mathematics[6] After Transfer to an OUS Institution

Academic Year	All Undergraduate Transfers (Unduplicated)	Number Taking Remedial Mathematics	% Taking Remedial Mathematics
1996-97	6,691	46	0.7%
1997-98	8,231	65	0.8%
1998-99	9,098	82	0.9%

By way of comparison, of the 4,244 undergraduate students attending an OUS institution in the "other transfer" category for 1998-99 (all transfer students whose last institution attended was *other* than an Oregon community college OR who had attended an Oregon community college in another year), 53 of them (1.2%) enrolled in remedial mathematics during the year.

Turning to the performance of Oregon community college students in their primary academic courses after transfer, Table 7 (from Appendix IX) lists, for three of the years of the data-match project, the overall grade point average for all transfer students enrolled in graded courses.

[6] "Remedial mathematics" is defined, for the purposes of this study, as any math course with a number below "100".

Table 7. Academic Performance of All Oregon Community College Transfer Students in All Oregon University System Courses

Academic Year	All Undergraduate Transfers (Unduplicated)	GPA for All Courses
1996-97	7,546	2.91
1997-98	8,062	2.92
1998-99	8,865	2.94

By way of comparison, the 4,070 students attending an OUS institution in the "other transfer" category for 1998-99 (all transfer students whose last institution attended was *other* than an Oregon community college OR who had attended an Oregon community college in another year) earned an overall GPA of 3.06 and the 6,988 first-time freshmen earned a GPA of 2.80.

In terms of academic performance of Oregon community college transfer students in a specific disciplinary area, Table 8 (from Appendix X) presents two years of grade point average data for those enrolled in OUS math courses.

Table 8. Academic Performance of Oregon Community College Transfer Students in Math Courses

Math Course	1997-98 Transfer Students Enrolled	GPA	1998-99 Transfer Students Enrolled	GPA
College Algebra	1,032	2.37	1,204	2.50
Pre-Calculus	943	2.37	1,018	2.35
Calculus	654	2.49	733	2.55
Math Beyond Calculus	348	2.72	427	2.64
All Math Courses	2,608	2.48	2,941	2.50

By way of comparison to the above data, Table 9 (from Appendix X) lists the performance of first-time freshmen as well as other transfer students in the same courses (for the 1998-99 academic year only).

Table 9. Academic Performance of First-time Freshmen and Other Transfer Students in Math Courses

Math Course	1998-99 First-time Freshmen	GPA	1998-99 Other Transfer Students	GPA
College Algebra	2,460	2.35	514	2.68
Pre-Calculus	1,559	2.62	441	2.64
Calculus	1,063	2.75	304	2.67
Math Beyond Calculus	261	2.80	143	2.71
All Math Courses	4,152	2.51	1,234	2.68

Additionally, Table 10 (from Appendix XI) illustrates the academic performance of Oregon community college students in a variety of disciplinary areas for two academic years.

Table 10. Academic Performance of Oregon Community College Students in Various Disciplinary Areas[7]

Disciplinary Area	1997-98 Transfer Students Enrolled	GPA	1998-99 Transfer Students Enrolled	GPA
Arts & Letters	4,342	3.01	4,702	3.03
Sciences	4,267	2.69	4,553	2.72
Social Sciences	5,301	2.88	5,766	2.90
Foreign Languages	966	3.05	1,047	3.07
English Composition	1,278	3.05	1,333	3.10

[7] "Arts & Letters" includes such areas as art, communication, English, journalism, music, humanities, philosophy, theater.
"Science" includes such areas as: biology, chemistry, physics, astronomy, engineering, geology.
"Social Science" includes such areas as: anthropology, geography, history, political science, psychology, sociology.
"English Composition" includes college-level writing courses, all levels.

By way of comparison to the above data, Table 11 (from Appendix XI) lists the performance of first-time freshmen as well as other transfer students in the same disciplines (for the 1998-99 academic year only).

Table 11. Academic Performance of First-time Freshmen and Other Transfer Students in Various Disciplinary Areas

Disciplinary Area	1998-99 First-time Freshmen	GPA	1998-99 Other Transfer Students	GPA
Arts & Letters	4,937	2.88	2,295	3.16
Sciences	4,803	2.59	1,893	2.84
Social Sciences	5,198	2.59	2,561	3.00
Foreign Languages	1,185	3.12	512	3.25
English Composition	4,054	3.02	699	3.30

The data pertaining to the performance of transfer students presented in Tables 6 to 11 have been considerable. Important findings drawn from the data include:

- The number of transfer student taking remedial mathematics the first year at their OUS campus is very small, totaling less that 1% of all transfer students.

- The aggregate performance of all community college transfer students in all of their OUS courses during the first year after transfer demonstrates an overall grade point average greater than 2.90. This compares favorably with first-time freshmen, who overall exhibit an average GPA of 2.80 and other transfer students who earn a 3.06 (1998-99 data).

- The data for mathematics courses show that community college transfer students perform acceptably. In 1998-99, for college algebra courses: community college transfers (2.50) outperformed first-time freshmen (2.35) but did less well than other transfer students (2.68). In pre-calculus, calculus, and math beyond calculus, community college transfers did slightly less well than first-time freshmen or other transfers. In looking at *all* math courses, community college transfers (2.50) performed at the same level as first-time freshmen (2.51), but not quite as well as other transfers (2.68).

- In a variety of other broad disciplinary areas, community college transfer students also performed well. In 1998-99, in "Arts & Letters," "Sciences," "Social Sciences," and "English Composition" areas, community college transfer students had overall GPAs that were better than first-time freshmen and slightly lower than other transfers. In "Foreign Languages," community

college transfer students (3.07) placed about the same as first-time freshmen (3.12) but behind other transfers (3.25).

Oregon Community College Students Simultaneously Enrolled in an Oregon University System Institution

Table 12 below replicates Appendix XIII and illustrates, for academic year 1997-98, the number of students concurrently enrolled in both an Oregon community college and an Oregon University System institution. These data represent the most recent year for which OUS and community college social security numbers may be matched in the same year. Such an analysis is useful since the decade of the 1990s has seen a proliferation of efforts on the part of Oregon's postsecondary institutions to provide a seamlessness to the educational experience by way of co-enrollment and dual-admission programs, as well as other types of partnership arrangements. Presumably, as partnership arrangements mature and similar data are generated for successive years, these numbers will increase.

The total number of credit hours generated in each postsecondary sector by these co-enrolled students are also listed in Table 12.

Table 12. Students Enrolled BOTH at an OUS Institution and an Oregon Community College During the 1997-98 Academic Year

	Summer 97	Fall 97	Winter 98	Spring 98
Co-Enrolled Students	429	1,079	1,139	1,109
Total Credit Hours CC	1,730	1,100	5,480	5,730
Total Credit Hours OUS	2,665	8,321	9,275	8,501

Unfortunately, data for only one year are available in examining this critical and timely issue of co-enrolled students. During this one year, the number of students participating in this manner was stable, but no other data are available at this time for comparison.

Retention and Graduation of Oregon Community College Transfer Students at Oregon University System Institutions

Although not specifically a part of the data-match project, the data presented in this section are significant in completing the overall picture of the transfer process in the state of Oregon. The rate at which transfer students persist in their pursuit of the baccalaureate, as well as the rate at which they graduate, have historically been of great interest to all involved in decisions regarding, and making policy about, community college transfer students. Data illuminating these issues follow; data regarding native OUS first-time freshmen are also included for comparison.

At the outset, however, it might be appropriate to note that presenting and examining data of this nature are based on rather outdated notions regarding student enrollment patterns. The concept of "linear transfer," whereby students are viewed as going from high school, to community college, to a four-year institution in a linear fashion, and seeking a degree in a timeline that has been thought "traditional" (e.g., four, five, six years) has been demonstrated to be a part of higher education mythology (Kinnick et al., 1998) – at least in terms of student behavior in the 1990s. When viewing data that are presented in such a way that suggest students *should* persist in their educational pursuits continuously, and graduate in a "timely" fashion, the warning should be issued that students do not necessarily think or behave in these ways. Students today move in and out of attending college, move between and among the institutions in the entire postsecondary sector, and may have goals in mind that do not necessarily make a six-year graduation rate a meaningful statistic.

Given the caveats above, however, retention and graduation data follow. Table 13 (from Appendix XIV) presents Systemwide data on Oregon community college transfer students four years after their entry into OUS. Table 14 (also from Appendix XIV) then presents Systemwide data for native OUS first-time freshmen, six years after entry. These data are presented as merely a starting point for analysis, however. It is difficult to assess the most appropriate manner in which to make transfer student vs. native student comparisons. In Table 13, transfer students in this entering cohort come to OUS with a variety of experiences, from the minimum number of credits to qualify as an admitted transfer student to those entering OUS with an associate's degree. Is it legitimate to compare this group four years after entry with all first-time freshmen six years after entry? Probably not. However, if allowed to make this comparison, transfer students appear to fare quite well in their four-year campus experiences: 63.1% have graduated in four years compared to 52.8% of first-time freshmen in six years' time.

Table 13. Retention and Graduation of Community College Transfer Students: 1993-94 Cohort, Four Years After Entry (1997)

Status	Number of Students	Percent of Total
Continuing	203	7.9
Graduated	1,626	63.1
Stopped Out	747	29.0
Total	2,576	100.0

Table 14. Retention and Graduation of First-Time Freshmen: 1993-94 Cohort, Six Years After Entry (1999)

Status	Number of Students	Percent of Total
Continuing	365	5.4
Graduated	3,554	52.8
Stopped Out	2,813	41.8
Total	6,732	100.0

A more reasonable and informative manner in which to look at graduation data for these groups might come from a comparison of *first-time freshmen who were able to persist through their first year* to *transfer students who enter OUS with a year or more (45 to 89 credit hours in the group chosen here) of college credits* earned at a community college. These data are presented in Table 15 (for which there are no corresponding data in the Appendix) for two different cohorts of native OUS students and Oregon community college transfers, six years after entry. In this comparison, community college transfers graduate at the rate of about 62% and native OUS freshmen in the 65-68% range.

Table 15. Comparison of Six-Year Graduation Rates of OUS First-time Freshmen Who Persisted Through First Year and Oregon Community College Transfer Students Who Transferred with 45-89 Credit Hours[8]

Entering Cohort	Graduation Rate of First-time Freshmen (completing one year at OUS)	Graduation Rate of Community College Transfers (with 45-89 Transferable Hours)
88-89	65.2%	61.9%
93-94	67.6%	62.0%

These data are not inconsistent with findings presented for community college students in the Portland metropolitan area (Kinnick et al., 1998) which demonstrated that for those transferring to Portland State University from an area community college with an Associate of Arts/Oregon Transfer degree, 67%

[8] Source: Oregon University System Institutional Research Services

completed their baccalaureate. The results for Oregon, though, may be somewhat behind the trend that has been demonstrated nationally. Adelman (1998) has found, on the basis of an examination of the national longitudinal data from the "High School and Beyond/Sophomore Cohort" (covering the period from 1980 through 1993) that, overall, 67% of students who enrolled in a two-year or four-year college directly from high school and attended a four-year college sometime earned a bachelor's degree. Of those students who earned 60-plus (semester) credits (the equivalent of 90-plus quarter credits or a two-year associate's degree), and attended a four-year college sometime, 79% earned a bachelor's degree.

Table 16 (from Appendix XIV) presents data on the six-year graduation and persistence rates for students of color. In this analysis, Asian-American students are the most successful in terms of persisting and graduating and Caucasian students are second most successful. The other groups have varying degrees of success when compared to these cohorts.

Table 16. Retention and Graduation of Community College Transfer Students of Color: 1993-94 Cohort, Six Years After Entry (1999)

	Number of Students	Percent of Total
Black		
Continuing	3	3.6
Graduated	14	53.6
Stopped Out	11	42.9
Native American		
Continuing	6	0.0
Graduated	24	57.8
Stopped Out	15	42.2
Asian		
Continuing	16	1.4
Graduated	90	73.4
Stopped Out	37	25.2
Hispanic		
Continuing	4	3.7
Graduated	32	63.0
Stopped Out	18	33.3
Caucasian		
Continuing	158	1.7
Graduated	1,287	70.1
Stopped Out	583	28.2

While Table 16 allows for group-to-group comparisons, no comparisons are possible between transfer students and students who began their baccalaureate pursuit at a four-year campus. Therefore, to better understand the academic

success of transfer students of color in terms of their graduation rates, data were obtained and arranged similar to those presented in Table 15. Table 17 presents a comparison of graduation rates for community college transfer students of color (who entered OUS with 45 to 89 transferable hours) to first-time freshmen students of color (who completed one year in an OUS institution).

Table 17. Comparison of Six-Year Graduation Rates of OUS First-time Freshmen Who Persisted Through First Year and Oregon Community College Transfers Who Transferred with 45-89 Credit Hours by Race/Ethnicity and Entering Cohort[9]

	Graduation Rate of First-time Freshmen (completing one year at OUS)				Graduation Rate of Community College Transfers (with 45-89 Transferable Hours)			
	88-89		93-94		88-89		93-94	
	N	%	N	%	N	%	N	%
Black	86	58.1%	90	44.4%	8	37.5%	15	26.7%
Native American	69	43.5%	58	56.9%	6	66.7%	20	30.0%
Asian	394	61.2%	413	66.8%	22	54.6%	54	70.4%
Hispanic	121	52.9%	176	61.4%	15	66.7%	19	57.9%
Caucasian	4,843	66.6%	3,972	68.7%	541	61.6%	767	62.5%
All	5,974	65.2%	4,986	67.6%	680	61.9%	988	62.0%

Solid inferences from these data appear to be difficult. Of the first-time freshmen, Caucasian (67-69%) and Asian (61-67%) students had the most consistently high graduation rates. For transfer students, Caucasians (about 62%) and Asians (55-70%) were similarly successful. For Black, Native American and Hispanic students, however, meaningful comparisons would seem to be problematic given the small numbers of students in the cohorts and the impact that the graduation of even one student would make in the percentages. One tentative conclusion is that Black, Native American and Hispanic students appear to graduate at lower rates than Caucasians and Asian Americans for both the transfer student and first-time freshmen cohorts. These data seem consistent with reports from the research literature which state that white community college students are more likely to earn a bachelor's degree than non-whites (Anglin, Davis, & Mooradian, 1995; Pincus & Archer, 1989). These data suggest that, in Oregon, the same is true for native students also.

[9] Source: Oregon University System Institutional Research Services

To summarize, then, the data on persistence and graduation of Oregon community college students who attend Oregon University System institutions demonstrate that:

- These data tend to make certain assumptions about student behavior that may or may not be valid. Students today flow freely between and among institutions, and pursue their academic goals in such a way that do not necessarily make these graduation rates meaningful statistics.

- The graduation rates of community college transfer students and those of native students compare quite favorably. Transfer students with at least one-year's worth of academic credit have a six-year graduation rate of about 62% while native students who persist through their first year have a six-year graduation rate of about 65-68%.

- Black, Hispanic, and Native American students appear to have lower graduation rates than Caucasian and Asian American students.

This section concludes the presentation of data that are the focus of this report. The following section expands the discussion above by offering some additional explanations regarding the meaning of the data and where these data may lead us in terms of policy deliberations and decisions.

Discussion and Policy Implications

Taken together, the Oregon-specific match data pertaining to transfer students, the persistence and graduation data (both presented in the preceding section of this report), and the review of the research literature in this area (presented in Appendix A), provide a comprehensive look at the phenomenon of student transfer in Oregon, as well as nationally. This section is devoted to providing a thoughtful examination of this information, as suggested by deliberations of the Joint Boards Articulation Commission. The discussion below is organized according to various data-specific topics.

Transfer Rates and Enrollment Patterns

From enrollment management as well as broader policy perspectives, the number of community college students transferring to four-year campuses is a matter of great interest to institutions on both sides of the transfer divide. Many agreements and programs (in Oregon and elsewhere) have been developed in recent years to facilitate the transition for students, not only with good intentions in mind to ease any possible "transfer shock" that students might experience, but also with an anticipated outcome of increasing the enrollments of transfer students. However, as much of the research has shown, and Oregon figures bear out, the numbers of transfer students from community colleges to

baccalaureate institutions are not experiencing much growth. Questions that naturally come to mind include: "Why is this so?" "Should we be doing better?" "What would 'doing better' mean?"

Unfortunately, furnishing answers to these questions is highly problematic. Researchers (e.g., see Grubb, 1991) who study the transfer process on a national level are able only to speculate on the reasons for "the declining transfer rate." If Oregon should be doing better with numbers of transfer students, that leads to the question "better than what (or whom)?" Data from the neighboring states (Appendix XII) of Washington and California indicate that these states have experienced a period of at least five years of stagnant or declining numbers of transfer students entering the public baccalaureate-granting institutions from the community colleges.

In terms of transfer rates in Oregon, this report has also examined the number of students entering an OUS institution the year after earning an AA/OT Degree. These data indicate that slightly over 50% of AA/OT recipients enroll at OUS campuses the year following their degree. Is this a reasonable fraction, given that *a priori* one might suspect that earning a transfer degree signals a student's transfer *intent*? Again, this is a difficult question to answer, and further investigation is required to place this percentage in a larger context. For example, if one tracks a particular cohort of AA/OT recipients out further than the one-year time period reported here, will data indicate that more of these transfer degree recipients actually appear at an OUS campus? And, even more difficult to determine, what is the proportion of AA/OT recipients who ultimately enroll in a private or out-of-state institution?

Student enrollment patterns and choices are addressed in this report, both in terms of Oregon and the nation (see Appendix XIII; de los Santos & Wright, 1990; Kinnick et al., 1998) Data clarify that students today:

- do not necessarily attend high school, community college, and four-year campus in a linear fashion,
- often enroll in more than one institution at a time (or transfer back and forth between campuses), and
- often take courses when and where they are most conveniently available to them.

In order to accommodate the needs of students who combine community college and four-year campus coursework in pursuing a baccalaureate degree, many partnership agreements and dual-enrollment/co-admission programs have been implemented. Programs such as these have been little studied, though, and more (and more recent, reliable) data are needed to track trends, successes, and limitations of such entities.

Given these considerations, the following recommendations are offered:

- **Current recordkeeping with respect to transfer activity in Oregon should be maintained, as well as Oregon's performance relative to neighboring states.**

- **Follow-up on students in Oregon who earn the Associate of Arts/Oregon Transfer Degree should be enhanced, to include tracking of these students more than one year past their degree (and possibly gathering information about those students who choose to not attend a four-year institution to see how their degrees are being utilized).**

- **Data-collection efforts on students simultaneously enrolled in two-year and four-year campuses should be expanded. These students are so enrolled as part of official programs as well as by individual student choice. Not enough is known about these students at this time to make well-informed policy decisions.**

- **Data-collection efforts should be expanded to include follow-ups on students by academic major pursued after transfer. The academic programs in which transfer students enroll may be able to inform curricular decisions at the campus level in both sectors.**

Credit Transfer (Acceptance & Loss)

Credit acceptance remains a prime concern in any discussion of transfer students. Students lament that credits earned were lost in the transition. Information from the data-match effort (Appendix IV) shows that students transferring with an AA/OT degree bring about 98-99 credits to their OUS campus, which is slightly over the 90-credit minimum for the degree; these credits transfer in as a block – meaning that all the credits earned for the associate's degree are accepted and transcripted at the four-year level. Even for these students, though, there is perception of credit loss since not all of the credits earned always apply to specific major, minor, or other requirements; an important fact to remember is that no matter the work a student transfers in, requirements for the baccalaureate must still be met.

Of course students need not complete a transfer degree before enrolling in a four-year institution. A study of student transcripts in the Portland metropolitan area (Kinnick et al., 1998) found that the average number of community college credits earned by transfer students was 91, of which, on average, 76 were accepted for transfer – leading to suggestions, of course, of credit loss. A number of reasons exist for these perceptions of such credit loss (de los Santos & Wright,

1990; Kinnick et al., 1998) and are outlined in Appendix A. Given the number of legitimate reasons that a student's credits may not apply as anticipated, a much more realistic way to look at this issue is that *students present credits for transfer that are not transferable*.

Still, institutions do bear some responsibility, along with their students, to ensure the best use of time and resources, which certainly could include trying to maximize the number of credits accepted. Of critical importance in this process is the role of advisor, whether that be a faculty member, counselor, or designated individual in an advising office. Staff members charged with dispensing advice to students interested in the transfer process must avail themselves of the most up-to-date information concerning the various options students may wish to pursue, including, but not limited to, the Oregon transfer degree, dual enrollment programs, articulation agreements for specific programs, and informal arrangements between two- and four-year campuses designed to benefit students who transfer. Students and advisors alike be sure that they are fully informed about the requirements that must be fulfilled in order to earn a baccalaureate degree.

Given these considerations, the following recommendations are offered:

- **The web-based "articulation hotline" list should be continued. This list, sponsored by the Joint Boards Articulation Commission, is a compendium of contact persons on community college and four-year campuses with expertise in transfer and articulation issues and information, available to all students, advisors, and others who wish current, campus-specific information.**

- **Efforts, already underway on many campuses, should be continued to expand advising information and services available to students with the development and implementation of electronic advising centers. The more information available to students, and the more readily accessible that information is, the better the students are served and better are the decisions they can make.**

Student Performance

The term "transfer shock" is one that is much discussed when addressing the performance of community college transfer students upon their arrival at a four-year campus. There is considerable evidence to support, as well as refute, the transfer-shock notion that the grade point averages of students decline immediately upon transfer. The data presented in this report do not speak precisely to the notion of transfer shock, since no comparisons are made between student performance before transfer to that after transfer. However, the data clearly demonstrate (Appendices VIII - XI) a quite acceptable level of

student performance for Oregon community college students who enroll in an OUS institution. For example,

- only a tiny percentage of incoming transfer students require remedial mathematics (Appendix VIII);
- the GPA of all community college transfers in all OUS courses is higher than that for first-time freshmen and slightly behind that for continuing students (Appendix IX);
- for all math courses combined, community college transfers perform at the same level as both first-time freshmen and continuing students (Appendix X); and
- when examined by various disciplinary areas, community college transfer students generally perform better than first-time freshmen and only slightly behind continuing students (Appendix XI).

Hence, given the picture provided by these data, a reasonable inference is that there is not much of a difference in academic ability between the Oregon community college students and native Oregon University System students who pursue the baccalaureate. Given the overall academic performance of community college students, it would not be unreasonable to conclude that if "transfer shock" is present for these students, a recovery is likely made within the first year (a result which might be expected based on other studies, see Diaz, 1992). Oregon community college students, then, are ready for the academic expectations placed on them when they arrive at the four-year campus of their choice, effectively dispelling the myth of inadequate transfer student preparation. Those students who transfer, and have the goal of the baccalaureate in mind, are successful at Oregon University System campuses.

While the aggregated match data are quite useful in presenting the analysis above, there is at least one limitation of these data: no information about the performance of individual students is available to community colleges who may wish to track student success at that level. This has been a frustration, expressed by community college advisors, faculty and administrators, even though privacy concerns prohibit such individual student tracking through the use of these data. It is this limitation, however, that gives rise to the following recommendation:

- **Oregon University System and Oregon community college administrators and data experts should explore (and/or develop) legal and ethical means in which to exchange unit-record data so that the success of individual students and small cohorts may be tracked and reported.**

This recommendation reinforces a previous recommendation, made by the Joint Board Articulation Commission's Student Services Action Team in 1998, which stated that

...the Student Services Action Team recommends that the Oregon Community Colleges and the Oregon University System seek means, including possible legislative action, which would permit institution-to-institution exchange of students' educational records. Such exchanges of student educational records will enable Oregon community colleges and universities to track transfer students' progress.

Persistence and Graduation

The questions of how well transfer students persist toward, and ultimately graduate with, a baccalaureate degree are important, especially in terms of comparing the experience of transfer students to those students native to the four-year campus. Recall, however, that certain caveats were discussed earlier in this report in terms of interpreting the available data. For example, the traditional notions of linear transfer and a four/five/six year time to degree appear to be outdated. Students do not necessarily behave consistently with postsecondary education's time-worn data collection and interpretation practices which suggest that today's students act as students did attending liberal arts colleges, say in the fifties, sixties, or seventies. Given all the reservations that may exist with regard to these data, though, comparisons are still made; this report has engaged in this practice as well. For community college students entering OUS with 45 to 89 credit hours in transfer work, the six year graduation rate is about 62%; this compares to a six-year graduation rate of 65 to 68% for native OUS students who persisted through their first year. Perhaps of greater interest and significance are the graduation data when examined by race/ethnicity, which show significant variability. The graduation rates for community college students six years after transfer are Asian, 73.4%; Caucasian, 70.1%; Hispanic, 63.0%; Native American, 57.8%, and Black, 53.6%. (Appendix XIV) These data roughly parallel the graduation-rate trends for students who began their studies at a four-year campus. Generally, Black, Native American, and Hispanic students graduate at lower rates than their Caucasian and Asian American counterparts (whether transfer or native students). (Table 17)

Given these concerns, therefore, the recommendations forthcoming from the OUS Retention Workgroup should be given particular attention.

Other

Not all of the possible implications of the data in this report fall neatly into the categories outlined above. This section briefly discusses two more areas of interest.

Student learning. The data in this report have tended to focus on traditional measures of student success, that is credits earned, grade point averages

achieved, and persisting toward graduation in a timely manner. Caveats have been mentioned earlier which suggest that these data should be viewed critically; that is, while available data tend to be interpreted in traditional ways, students are behaving in new ways. In an era of (secondary as well as postsecondary) education that is moving toward assessing proficiencies rather than documenting seat time and grades, perhaps these (and other) data need to be viewed in a new light. As more and more students come from their high-school experiences having certificates of initial and advanced mastery, and the Oregon University System moves toward the documentation of proficiencies for admission, students moving back and forth between community colleges and four-year campuses will necessarily be expected to provide documentation of their learning; the data that track student movement will necessarily have to reflect student achievement in that way too. Reports that follow up on the data presented here will eventually become more outcomes-oriented and reflect student success in new and different ways.

Efficiency in higher education. Following the discussion above that suggests new ways of looking at student performance, so, too will the definitions of "efficiency" need reexamination. Educators, policymakers, and legislators have historically tended to take a linear approach when viewing the world of the student in postsecondary education. This perspective needs to change. The contemporary model for efficiency no longer involves a linear pursuit of a degree from high school, to community college to four-year campus. Nor is efficiency defined by a four, five, or six year timeline for degree completion. Students in today's educational marketplace take courses when are where they can (including online), using all postsecondary providers as a "system", and often have goals in mind that do not include immediate degree completion. Rather, goals are defined in more incremental terms: oriented toward what course, courses, or short-term training can best provide the information, skills and/or credential that applies to career advancement *today*. In sum, the "linear" ways of viewing postsecondary education as the model of "efficiency" are now part of higher educational mythology; *non-linearity* is now the functional way of looking at students' progress.

Appendices

Appendix A. The Context: A Review of the Literature about Transfer Students and the Transfer Process 26

Appendix B. References Used in this Report 41

Appendix I. Students Enrolled for Credit at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next (Unduplicated Count of All Students at All Levels) 44

Appendix II. Students Completing a Postsecondary Program at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next 45

Appendix III. Students Completing and AA/OT at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next (by Community College) 46

Appendix IV. Average Credits Transferred by AA/OT Recipients from an Oregon Community College Who Then Enrolled at an OUS Institution the Next Year 47

Appendix V. Lower-Division Collegiate Students Enrolled at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next 48

Appendix VI. Students Enrolled at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next (by Race) 49

Appendix VII. Unduplicated Count of Undergraduate Students Enrolled at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next [by Gender and Residency (Fee) Status] 50

Appendix VIII. Transfer Students Taking Remedial Mathematics: Unduplicated Count of Undergraduate Students Enrolled at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next (Compared to Other Undergraduates) 51

Appendix IX. Academic Performance (in all OUS Courses) of Students Enrolled at a Community College One Year and then Enrolled at an OUS Institution the Next (by Community College, Compared to First-time Freshmen and Other Undergraduates) 52

Appendix X. Academic Performance (in OUS Math Courses) of Students Enrolled at a Community College One Year and then Enrolled at an OUS Institution the Next (Compared to First-time Freshmen and Others) 53

Appendix XI. Academic Performance (by Disciplinary Area) of Students Enrolled at a Community College One Year and then Enrolled at an OUS Institution the Next (Compared to First-time Freshmen and Others) 54

Appendix XII. New Community College Transfers to Public Institutions in Western States by Year 1994-95 to 1999-00 55

Appendix XIII. Students Enrolled BOTH at an OUS Institution and an Oregon Community College During the 1997-98 Academic Year (by Term, including Credit Hours Taken) 56

Appendix XIV. Retention and Graduation of First-time Freshmen and Community College Transfers: 1993-94 Entering Cohort, Systemwide Totals Including Students of Color (includes Students Transferring within OUS After Initial Enrollment) 57

Appendix A

The Context: A Review of the Literature about Transfer Students and the Transfer Process

Since the inception of community colleges, educational researchers and policy analysts have studied the transfer process – and the role (one of many) the community colleges have assumed in the preparation of students for transfer to a baccalaureate-granting institution. Several topics have been of interest, such as

- the proportion of students at community colleges who transfer and ultimately pursue a baccalaureate degree ("transfer rate");
- the proportion of credits earned at a community college that ultimately are accepted by the transfer institution (credit acceptance/credit loss, or "transfer efficiency");
- patterns of attendance utilized by students as they move between community college and four-year institutions;
- how well students who transferred from a community college perform at the four-year institution (especially as compared to the students who are "native" to the four-year campus); and
- persistence to graduation at the baccalaureate level by transfer students.

This Appendix reviews some of the recent research literature in these areas.

Transfer "Rates," Credit Acceptance/Credit Loss, and Patterns of Enrollment

Recent concerns about transfer rates (and, to some degree, the topics of transfer efficiency and enrollment patterns) stem from statewide trend data that reflect flat or even declining enrollments of community college transfer students. The experiences of the three Western states (Oregon, California, and Washington) are somewhat similar in this regard (see Appendix XII). These related areas are discussed below.

Transfer rates. In its most basic sense, the term "transfer rate" calls for the calculation of a ratio of students who have transferred (the numerator of the fraction) compared to all students who could *potentially* transfer (the denominator of the fraction). Such comparisons can be valuable to both community colleges and four-year institutions. For the community colleges, a transfer rate suggests an answer to the question "What is the community college's contribution to its students' progress toward the baccalaureate?" (Cohen, 1993; cited in Laanan & Sanchez, 1996, p. 36). Four-year institutions are interested in transfer rates since these data suggest how effective they are in attracting community college students to their campuses.

In practice, however, calculations of transfer rates are fraught with difficulties (Laanan & Sanchez, 1996; Spicer & Armstrong, 1996), primarily because of a

lack of consensus about what constitutes a potential transfer student (Banks, 1990). That is, what is the appropriate form of the denominator in the calculation described above? Several suggestions for the denominator have been offered, including (1) the college's total enrollment, (2) students completing a minimum number of transferable credits, and/or (3) students certified as "transfer ready" (for example, those having completed a specified program of lower-division general education requirements) (Spicer & Armstrong, 1996). Without a standard definition, though, the calculation of a transfer rate can vary widely. For example, Spicer and Armstrong (1996) cite an example from California, where a transfer rate is calculated by holding the total number of transfer students (the numerator) constant and using varying definitions of "potential transfer student" (in the denominator). Depending on the definition used, the transfer rate could be said to be anywhere from 3.7% to 17.7%!

Another critical issue in the calculation of transfer rates is whether or not they are cross-sectional in nature (i.e., using one point in time such as the number of students transferring in any one given year) or longitudinal (i.e., following a cohort of students across time) (Spicer & Armstrong, 1996). While most data-collection practices in higher education focus on cross-sectional data, when determining transfer rates, some researchers suggest that longitudinal data may posses greater utility and meaning (Adelman, 1989; and Garcia, 1991; cited in Spicer, 1996), especially in light of the latest information about enrollment patterns (discussed later).

Given the inconsistencies which appear in different forms of transfer rate calculations, Rifkin (1996, p. 81) asks, quite logically, "What [then] is a reliable and relevant measure of transfer success?" Although each model of transfer rate calculation seems to have its own merit, a natural concern is how one compares institution-to-institution or state-to-state transfer-rate data with no agreed-upon definition. Additionally, even if a standard definition could be developed, what would distinguish a good transfer rate from a mediocre one? Certainly legislators, campus-level policymakers, and others would want to know.

Given these concerns with transfer rates, Spicer and Armstrong (1996, p. 53) offer the opinion that "transfer rates...are difficult to use both as a program accountability tool for external audiences and for local planning and program review purposes." Further, Rifkin (1996) suggests that

> ...rather than arguing about which transfer rate to adopt as the standard, policy makers, higher education officials, and local community college education leaders need to review the various definitions and formulas and determine which rates are acceptable for national and state program accountability purposes and which represent the community college's effectiveness in preparing students for transfer." (p. 81)

Given this set of circumstances, Berman, Curry, Nelson, & Weiler (1990, cited in St. Clair, 1994) posit that new ways of looking at the success of the transfer process are needed. Noting the observation of Berman et al. (1990) that the calculation of transfer rates (however they may be done) are merely measures of transfer *activity*, not transfer effectiveness, St. Clair (1994, p. 19) suggests that "alternate beliefs" should be considered. Noting that ultimately students themselves are responsible for their own lives, that they possess varying and changing aspirations, that they may be enrolled in a transfer program even though they are unsure of why they did so, and that individual commitment is important for learning and for completing a college transfer program, it may not be reasonable to hold the community college wholly responsible for transfer outcomes. Indeed, it is important to realize that the "responsibility for success finally rests on the students whom the college has agreed to serve" (St. Clair, 1994, p. 19) and, presumably, to move away from such college-based measures as transfer rates as indicators of transfer effectiveness.

Declining transfer rates. Whatever definition is used for transfer rate, Barkley (1993, p. 41) notes that a "decline in transfer rates has been noted consistently in the literature." And in considering the meaning of transfer rates, Grubb (1991, p. 194) noted that both the number and proportion of community college students who transfer to four-year institutions have been declining "for at least a decade." Although the data used to support Grubb's observations were drawn from 1970s and 1980s sources, similar concerns about transfer rate decline have continued to be expressed throughout the 1990s (for example, see Washington State Board for Community and Technical Colleges, 1998). Additionally, Grubb (1991) states that

> ...the evidence about transfer rates has always been riddled with problems. Much of the available data are institution-specific, rather than nationally representative; much of it can follow community college students to only a few four-year institutions and is therefore likely to undercount transfer; and many statistics are based on cross-sectional data rather than longitudinal data that can follow students from institution to institution. (p. 196)

In order to study the issue of transfer rates from a longitudinal perspective, Grubb used two national databases, the "National Longitudinal Study" of the graduates of the high school class of 1972 and the "High School and Beyond Study" (the graduating class of 1980). Both of these databases relied on the postsecondary transcripts of students and allowed for the tracking of students, over time, among all types of institutions (private, public, in state, out of state). In comparing the two cohorts, Grubb established that, for the graduating class of 1972, 68.7% of students with associate degrees transferred to a four-year institution and 60.7% of those completed a baccalaureate degree. For the class of 1980, however, just 48.9% of students with associate degrees transferred and a mere 12.1%

completed a baccalaureate. Further, the practice of transferring without a credential (completion of some type of community college program) seemed to have increased during this time: for the class of 1972, 64% of the transfer students did so without a credential and for the class of 1980, 73% of the transfers were without a credential.

Grubb suggests that there are *many* probable causes for the general decline in transfer rates between the two cohorts studied. Among the explanations offered were:

- The enhanced popularity of professional-technical programs in the community college (and their emphasis on job readiness);
- An apparent weakening of the associate degree as a credential en route to a baccalaureate (i.e., as noted above, for the two cohorts studied, attainment of an associate's degree declined in importance as a step in the path to a bachelor's degree);
- Community college students' practice of "milling around," that is, a failure to put together a coherent academic program and, therefore, leaving the community college without much progress toward transfer (or employment);
- The increasing number of students entering community colleges who may be considered "experimenters," that is those who enroll to try out their fit with postsecondary education;
- The changing composition of community college students, which now includes more students who, for whatever reason, have more difficulty being academically successful; and
- A decline in student aid, which would have likely affected the class of 1980 more than the class of 1972.

A recent study and analysis of transfer rates from the state of Washington (Washington State Board for Community and Technical Colleges, 1998), suggests additional factors that may be at play when considering declining transfer rates in the late 1990s. Among the possibilities considered for that state were:

- The impact of declining numbers of Washington residents in the 19- to 23-year-old age group, which has previously been shown to be directly related to transfer activity;
- Students in the community colleges who were welfare participants and did not transfer to a four-year institution because it would have jeopardized benefits; and

- The effects of the Running Start program, where many students who would have previously accumulated credits at the community college *after* high school are instead earning them *during* high school. Many of these students would have previously been counted as transfer students, but would not now be so considered if they enter a four-year institution with fewer than 40 credits.

In sum, the issues surrounding the discussion of transfer rates are complex. While policymakers are concerned about the decline in transfer numbers between the two- and four-year sectors, there appear to be many possible reasons for such a decline. Further, the reasons suggested may be outside the realm of any efforts at control.

Credit acceptance/credit loss. An ongoing issue pertaining to student transfer is credit acceptance and the perception of credit loss. This area is sometimes referred to as "transfer efficiency" (Kinnick et al., 1998). A concern commonly cited by students (as well as policymakers) is the scenario of a transfer student who desires to have credits from the community college applied to his or her academic record at the baccalaureate institution but finds that not all the prior academic work is recognized as expected. The student wonders, "why didn't all the credits transfer?"

To address concerns such as these, Kinnick et al. (1998) studied the process of student transfer among three community colleges and a four-year university, all in close proximity to each other in an urban environment. (More details on this study are provided below in the "Enrollment Patterns" section.) The institutions represented were all in the Portland, Oregon, metropolitan area: Clackamas Community College, Portland Community College, Mt. Hood Community College, and Portland State University (PSU). One of the research questions that guided the project was: "Do students lose credits when they transfer from community colleges to the university? If so, what is the nature of the loss?" (p. 90). To address this question, the academic transcripts of 109 students (of the 504 total) in the study were analyzed. Results included the following:

- The average number of community college credits earned was 91.3 (range of 4-209)

- The average number of credits accepted for transfer by PSU was 75.5 (range of 4-113).

- 80% of the students were able to transfer more than 75% of their community college credits.

Further, the study was able to classify the reasons that earned community college credits were not accepted by PSU. The reasons for non-acceptance were:

- *Low grade:* transfer courses in which students had earned unacceptable grades. (32% of students had credits refused for this reason.)
- *Developmental education course:* credits earned in non-college-level courses. (65% of students had credits refused for this reason.)
- *Professional-technical course:* credits earned in professional-technical areas that were not designed for transfer to a four-year institution. (31% of students had credits refused for this reason.)
- *Duplicate course:* credits appearing on the transcript but which were taken more than once. (5% of students had credits refused for this reason.)
- *Over maximum allowed:* PSU (per System policy) only allows transfer of 108 credits maximum. (21% of students had credits refused for this reason.)
- *Other:* 17% of students had a small number of credits (average of 3.2 credits) refused for other reasons.

(Percentages do not add to 100% because some students had courses not accepted for multiple reasons.)

The conclusions of the authors tend to minimize the importance of the concept of credit loss, preferring instead to reframe the results as "simply the fact that non-transferable credits were submitted to the university" (Bach et al., 1999, p. 4). So, while students may always have the *perception* of credit loss, data suggest a different reality. These data tend to lend support to the Joint Boards Articulation Commission's experience, and previously stated assertion (Oregon University System, 1999, p. 2), that: "course and credit transfer...is a successfully-completed process in the overwhelming majority of cases."

Enrollment patterns. While there is a wealth of literature on college choice, student persistence, and many topics (such as those reviewed here) related to the transfer process, until recently there has been no systematic body of literature that addresses the phenomenon of the multiple-transfer student (Kearney, Townsend, & Kearney, 1995). The traditional way of thinking of the transfer process tends to follow "the assumption that students follow a linear attendance pattern of two years at the community college followed by transfer to the university" (Kinnick et al., 1998, p. 91). This view has been under challenge, however, at least since the early 1990s when de los Santos and Wright (1990) described a swirling dynamic when it came to students' attendance at Arizona's

community colleges and four-year institutions on the way to the baccalaureate. Adelman (1992) subsequently identified, based on student transcript data from the National Longitudinal Study of 1972, *ten* identifiable community college attendance patterns. And Piland, (1995), in a study of community college students who subsequently earned bachelor's degrees, reported that fully 59% of the students interrupted their studies at some point by stopping out and 37% attended more than one institution before ultimately transferring to the university. The conclusion reached was that "the notion of a student entering a community college directly after graduating from high school and taking 15 units a semester for four straight semesters and then transferring to a university to finish in two additional years is a myth" (Piland, 1995, p. 40).

Kinnick et al. (1998, in the study referred to earlier) examined the flow of students in the Portland, Oregon, metropolitan area between the three local community colleges and Portland State University. The specific research question that guided this portion of the study was: "What are the patterns of student movement between the community colleges and the university?" (Kinnick et al., 1998, p. 90). Utilizing a statified random sample, the transcripts of 504 students were analyzed to address this question.

This study demonstrated that multiple transfer patterns existed and that "students move among the three community colleges and the university as if the were part of a single complex educational system..." (Kinnick et al., 1998, p. 93). Specifically,

- While 76% of all students fell within one of seven dominant patterns, *74 different patterns of enrollment were identified;*

- 76% of students began their postsecondary experience at one of the community colleges, but 22% initially enrolled at the university (and 2% began concurrently enrolled at a community college and the university); and

- It was not unusual for students to have made multiple "switches" (changes of institution) during their academic career. While 51% made only one switch, 22% made two switches, 10% made three, 9% made four, and 8% made five or more switches. (Indeed, one student was found to have made 13 switches between 1974 and 1996.)

As impressive as these data are in demonstrating the *non*-linearity of the transfer process as practiced by today's students (at least for the Portland metropolitan area), the authors offer that the findings "represent a conservative view of the movement that actually occurred among all the institutions" (Kinnick et al., 1998, p.94). Their method of analyzing transfer patterns did not take into account students in the sample who may have attended institutions outside the four-institution "system" identified, nor did it account for changes in status that were not necessarily captured in the coding scheme utilized.

The work of Kinnick et al. (1998) was based on an examination of student transcripts and was therefore lacking in information about the motivations of students who engaged in multiple-transfer behavior. Kearney et al. (1995), however, surveyed multiple-transfer students and found that individuals who engaged in such behavior did so *not* because of choosing a college unwisely. *Rather* they " selected institutions based on practical, specific attributes" (p. 339), such as location and cost. Further, "for most of these students, transferring was a positive experience in that it meant moving to an institution that was a better fit academically, socially, financially, or geographically, thus enhancing their persistence within the system of higher education" (p. 339).

If, indeed, non-linear enrollment patterns are as prevalent as the work of Adelman (1992), Kearney et al. (1995), Kinnick et al. (1998), and Piland (1995), suggest, then "transfer rates" are probably even more questionable in terms of being a valid measure of transfer success. The enrollment patterns data demonstrate that the linear picture of academic progress, from community college to four-year institution, is an inaccurate one for many students. Transfer rates, it would seem, would be most useful to institutions when one is the "sender" and one the "receiver" of transfer students. In the non-linear scenario of transfer, a transfer student's last institution may or may not be the one with the most influence on preparation for baccalaureate success or on the transfer process itself. What do transfer rates really mean when students attend multiple community colleges before enrolling in a four-year institution, enroll concurrently in multiple community colleges, or enroll concurrently in a community college and a four-year campus? In this new way of looking at a transfer student's route to the baccalaureate, how do we measure success?

In sum, the variety of ways that today's students have found to pursue their academic goals should give rise to some criticism of traditional ways of benchmarking the transfer process. The discussion of transfer rates may be as outdated as the idea of the linear transfer.

Student Performance

Of continuing interest to faculty, advisors, administrators and policymakers is the question of student performance of community college students after they transfer to the four-year campus. The term "transfer shock" was coined in 1965 (Hills, 1965, cited in Diaz, 1992) to designate the drop in grade point average (GPA) that students presumably experience upon transferring from a two-year to a four-year institution. The literature seems to offer conflicting evidence of transfer shock as a universal phenomenon, however. Diaz (1992) synthesized the results of 62 research studies that offered academic performance data of community college transfer students. Thirteen of the studies indicated that transfer students had a positive GPA change, zero change, or no significant GPA

change upon transfer. Forty-nine of the studies indicated that a transfer shock effect occurred, at least as evidenced by lower GPAs during the first semester after transfer. Thirty-three of the 49 studies indicated that after the initial GPA decline, students recovered a portion of their lost GPA, sometimes even exceeding the GPA at transfer. The majority of GPA changes reported in these studies were one-half of a grade point or less, with 34% of the studies indicating that the students recovered completely over time. Many studies indicated that students with a transfer GPA below 2.0 were the least successful. And several studies offered possible explanations for transfer shock, primarily in terms of different grading practices at the institutions and other life adjustments necessitated by attending a senior, often much larger, campus.

Student performance relative to the time of transfer has also been investigated. That is, does the magnitude of the so-called transfer shock effect vary for those students transferring at different times in their academic careers (sophomore, junior, senior)? In exploring this question, House (1989) found that time of transfer has a definite correlation with performance, with students who transferred as seniors earning the highest, first-term, "new transfer" GPA (2.85), followed by juniors (2.45), and then sophomores (2.19). Continuing community college students at the four-year campus outperformed new transfer students at the sophomore and junior class levels; at all three class levels, continuing community college transfer students outperformed continuing native students.

An important finding of this study was that transfer shock ultimately disappears; continuing transfer students' GPAs continue to rise after the first semester until they reach those of native students. Another author argues that this reported recovery from transfer shock may be a misleading claim, however. Dougherty (1992) suggests that such analyses are flawed in that they are made by comparing students' grades two or three years past transfer to those of the year of transfer, and "even when the same cohort is involved, no correction is made for the fact that the older students no longer include the many students who did badly after transfer and dropped out" (p. 202).

Student academic performance findings from the Portland (OR) metropolitan-area institutions are mostly consistent with House's (1989) data. One of the research questions examined by Kinnck et al. (1998) was: "How well do community college students perform academically after transferring to the university?" (p. 90). (Recall that the institutions involved were Clackamas Community College, Portland Community College, Mt. Hood Community College, and Portland State University.) Kinnick et al. examined the academic transcripts of that subset of students in the "linear transfer" category (i.e., students who had entered the metropolitan "system" of institutions at a community college and moved directly on to PSU as an admitted transfer student) and found that students appeared to experience an average loss of GPA of 0.30 the first term after their transfer to PSU. During subsequent terms GPAs were found to recover

slightly. Comparison of the GPAs for this subgroup yielded the following (Kinnick et al., 1998, p. 96):

Pre-transfer cumulative community college GPA	3.08
First-term (graded enrollment) post-transfer GPA	2.77
Second-term (graded enrollment) university GPA	2.83
Cumulative university GPA	2.82

Hence, the preponderance of evidence seems to suggest that transfer shock is a real effect, with students beginning to experience recovery in the second term after transfer. After an appropriate adjustment period, transfer students often perform as well or better than students native to the four-year campus.

Student Persistence, Time to Graduation, and Baccalaureate Attainment

Another issue of great interest to many researchers and practitioners is the rate of baccalaureate-degree completion for students entering postsecondary education by way of a community college. Brint and Karabel (1989, p. 226) observed, for example, that "the very fact of attending a two-year rather than a four-year institution lowers the likelihood that a student will obtain a bachelor's degree." Although Dougherty (1992, p. 188) believes that "this claim has not gone unchallenged" (citing the argument that community college students are much less likely to *want* a bachelor's degree in the first place), the jury remains out on this question. Some of the relevant studies that speak to these issues are discussed below.

Time to Graduation and Baccalaureate Attainment. Research conducted over the last three decades has attempted to describe the success of community college transfer students, not only in terms of their academic performance (discussed in the preceding section), but also in terms of how long it takes to the baccalaureate. For example, Knoell and Medsker's (1964, cited in Anglin et al., 1995) early national study of the transfer process, conducted in the late 1950s, found that two years after transfer, 45% of the students had graduated, 31% were still enrolled, and 28% had dropped out. Three years after transfer, 62% had graduated and 9% were still enrolled. Of the 29% who eventually dropped out, only 10% had done so because of academic difficulties.

More recent studies which speak to transfer student success, including eventual attainment of a bachelor's degree, include the following:

- Cohen and Brawer's (1982, cited in Anglin et al., 1995) analysis of attrition, graduation, and GPAs, found a higher attrition rate and lower GPA for transfer students compared to native students.

- Graham and Dallam (1986, cited in Glass & Bunn, 1998) performed a two-year comparison of community college transfer students' probationary status with native students' probationary status in the University of Iowa's College of Liberal Arts. They found that while transfer students made up 28.3% of the student body, they comprised 47.8% of students on probation.

- Vaughn and Templin's (1987, cited in Anglin et al., 1995) comparison of academic performance and graduation between Piedmont Virginia Community College (PVCC) students and University of Virginia (UVA) native students, found that 79% of PVCC transfers who entered UVA with junior status graduated within two years, compared to 86% of UVA native students who had reached their junior year.

- Pincus and Archer's (1989, cited in Glass & Bunn, 1998) review of community college studies, led to the conclusions that (1) only about 10-15% of all community college students ever receive a bachelor's degree; (2) no more than 20-25% of community college students who aspire to a bachelor's degree ever obtain that goal; (3) white community college students are more likely to earn a bachelor's degree than non-whites; (4) students who want a bachelor's degree, and who enter postsecondary education at a community college, are less likely to receive the degree than students who enter a four-year college to begin with; and (5) a high degree of regional variation exists in the percentage of community college students who receive bachelor's degrees.

- Dougherty's (1992, p. 190) observation that "even when comparing students of equivalent background, ability, high-school record, and aspirations, several different studies have found that students entering through the community college receive 11 to 19 percent fewer bachelor's degrees and average one-eighth to one-fourth a year less of higher education than similar students entering four-year colleges." Dougherty, accordingly, attributes this so-called "baccalaureate gap" not so much to traits of community-college students as to the nature of the institutions. He postulates that community college students who aspire to the bachelor's degree encounter institutional obstacles at three stages: "surviving in the community college, transferring to a four-year institution, and persisting in the four year college" (p. 192). With respect to persistence, once students have transferred, a variety of factors are suggested to come into play, such as less financial aid, lower-division credits which have not been recognized, lack of adequate social integration in the four-year environment, and less preparation for the academic expectations they face in the senior institution.

- Anglin, et al. (1995) performed a study that followed students from Cuyahoga Community College to Kent State University (in Ohio) over a ten-year period (1979-1988). Three major findings were reported: (1) the graduation rate of the community college students was equal to, or better than, a matched

population of native students; (2) no significant differences were found in attrition rates between transfer and native students, and (3) when comparing the outcomes of Caucasian vs. non-Caucasian students, non-Caucasian students (whether native or transfer) were the least likely to complete a bachelor's degree.

- Glass and Bunn (1998) surveyed community college transfer students in the state of North Carolina to assess the factors entering into time to graduation. Among the factors were: the quality of the student services available (e.g., counseling, advising, health services, etc.); the frequency with which such services were utilized; the degree of social integration into the life of the institution (as measured by the types and range of activities in which students participated); and specific barriers to progress (such as loss of credit, financial obligations, family responsibilities). Among the conclusions offered by the authors were: (1) Given sufficient time, students who transfer from a community college to a baccalaureate institution do graduate. In this sample, 55% of the students graduated within four years of transferring and another 36% graduated within seven years. (2) Race is a factor in the length of time required to graduate. (3) Students who are employed after transferring take longer to graduate. (4) Most students did not perceive major barriers upon transferring to the senior institution. While many *important* barriers were noted (such as credit loss and being able to pay for college), the barriers generally did not seem to significantly deter students from their ultimate goal of graduating.

Theoretical models of student persistence. While the body of research literature on student persistence is voluminous (Pascarella, Smart, & Ethington, 1986), only a limited number of studies exist on the persistence of community college transfer students (Borglum & Kubala, 2000; Johnson, 1987). Student persistence studies generally focus on developing explanations for *why* students continue, or withdraw from, their academic pursuits. One of the foremost researchers in this area is Vincent Tinto of Syracuse University who developed a theoretical model (Tinto, 1975, 1987) that assumes persistence/withdrawal behavior is primarily influenced by a student's integration into the social and academic structures of an institution. While Tinto's work, and that of other researchers (for example, Bean, 1980) which build on it, has been generally regarded as satisfactory in terms of predictive ability, the model is limited in that it is built mostly on the experiences of students at residential, four-year institutions and neglects those who begin their academic careers at community colleges.

In an effort to extend Tinto's model, Pascarella et al. (1986) investigated college persistence of a sample of community college students drawn from the 1971-1980 Cooperative Institutional Research Program (CIRP) surveys. The survey respondents were defined as those entering a two-year institution in 1971 who aspired to a bachelor's degree or higher; 825 students made up the sample,

representing 85 two-year institutions. Consistent with previous results that focused on persistence behavior, the transfer students in this study were found to be significantly more likely to complete a bachelor's degree, or persist in school in pursuit of the degree, if they were successfully integrated into their last institution's academic and social systems. In this instance, academic integration was reflected in the student's GPA and membership in an honor society while social integration was related to the student's involvement with peers and faculty members. The authors concluded, given the relative importance of academic and social integration for these students, that what happens to students after they enroll may be as important to their success as the influence of precollege factors (such as family background, secondary-school experiences, individual characteristics, etc.).

In another, one-institution study that examined persistence of transfer students, Johnson (1987) analyzed the 1984 survey results of 271 students who attended a community college before transferring to a large urban commuter university in the Southwest. Specifically, the relationship between academic factors and persistence were examined, as well as whether or not gender or class level had an influence. Utilizing the causal modeling techniques similar to those of Tinto (1975), Bean (1980), and Pascarella et al. (1986), Johnson found that the "intent variable" ("the expectation of returning to the university the following spring semester", p. 324) was the major factor in persistence. Other variables that contributed to persistence in this sample were "academic performance" (i.e., GPA), "academic satisfaction" ("satisfaction with the quality of education at the university", p. 324), "academic integration" ("interest, motivation, and involvement in the academic program and the perception that one 'thinks like faculty'", p. 324), and "practical value of the academic program" ("the perception that one's education will be useful for self-development and for getting a job", p. 324). In examining the gender and class-level distinctions, the study confirmed that there were differences among community college transfers, in both the magnitude and significance of the academic factors related to persistence. Variables related to a student's social integration were not included in this model, but the study confirmed the significant influence of academic factors on persistence.

Baccalaureate Degree Attainment of Transfer Students in Oregon. Two studies offer evidence of the success (in terms of attaining a bachelor's degree) of transfer students in Oregon. Kinnick and Kempner's (1988) study utilized both quantitative (surveys) and qualitative (interviews) methods to examine the experience of 1974 high school graduates and their educational experiences and outcomes by 1985. The quantitative portion of the study (*not* utilizing the causal modeling approaches in those studies described just above) was directed toward the question: "Do students with similar academic achievement levels, educational aspirations, and socioeconomic backgrounds who elect to attend initially either a two- or four-year college attain the bachelor's degree at the same rate?" (p. 301). The results from the 1,400 respondents to the survey indicated that completion of

the baccalaureate degree was strongly associated with those first attending a four-year institution. Of particular note was (p. 307):

- 51% of those with a high school GPA below 3.0 who attended a four-year college achieved the B.A. while only 37% of those with GPAs above 3.5 who attended a two-year college did so; and

- among those with high school GPAs of 3.0 or above who reported low parental income, 8% initially entering a community college and 45% initially entering a four-year institution completed the B.A.

The authors concluded that these results from Oregon were consistent with others' findings (for example, recall the work of Brint & Karabel, 1989; Pincus & Archer, 1989), namely that where a student begins postsecondary studies does, indeed, matter and that the probability of attaining the baccalaureate is lower if one begins at a community college. Overall, the study provided strong evidence that achieving a bachelor's degree is *not* equally likely for students of similar academic ability and motivation who first elect to attend a two-year institution rather than a four-year campus.

Additionally, the 1998 study by Kinnick et al. (1998), referred to earlier, examined baccalaureate-degree completion for the "linear transfer" subgroup, that is those students who engaged in a direct transfer to Portland State University (PSU) after first having attended one of the three Portland metropolitan-area community colleges (Clackamas, Mt. Hood, Portland). The results indicated that for those students first earning an Associate of Arts/Oregon Transfer degree, 67% eventually earned a baccalaureate from PSU. For those earning another type of degree from the community college, 41% earned the bachelor's; and for those earning no community college degree prior to transfer, 46% ultimately earned a PSU bachelor's degree.

There is some difficulty placing the degree-completion rates just cited in a broader context given the scarcity of comparable studies. Adelman (1998), however, has attempted to provide some insight to the general question: "what proportion of college students earn a degree?" Basing his answer(s) on national longitudinal data from the "High School and Beyond/Sophomore Cohort," covering the period from 1980 through 1993, the data suggest that, overall, 67% of students, who enrolled in a two-year or four-year college directly from high school and attended a four-year college sometime, earned a bachelor's degree. Of those students who earned 60-plus (semester) credits (the equivalent of 90-plus quarter credits or a two-year associate's degree), and attended a four-year college sometime, 79% earned a bachelor's degree.

Summary of the Transfer Student Research

The research studies cited above present a complex and, at times, confusing picture of the transfer process. To distill the above information above, what might be the most useful to remember is:

- "Transfer rates" are not computed in a standardized fashion, and are therefore difficult to compare and assess. However, for some time now, there is general agreement that the rate and/or number of transfer students from community colleges to baccalaureate-granting institutions has been declining. Many possible explanations have been offered, from the increased focus on community colleges and their students on professional-technical programs (and more immediate employment opportunities) to changing demographics.

- The issue of "credit loss" is a real one for transfer students, but research has shown a variety of legitimate reasons for the lack of credit acceptance on the part of the receiving institution. Another way to look at this is that "non-transferable courses are being submitted to the university."

- The notion of the "linear transfer" is outdated. Students do not typically follow the path of high school, to community college, to four-year campus in a linear fashion. Enrollment patterns are very complex, and many students typically attend multiple institutions, sometimes concurrently, in pursuit of their academic goals. Research questions and policy decisions based on the concept of "linear transfer" should be considered suspect.

- There is much literature to support the validity of the "transfer shock" effect, meaning that the academic performance of a transfer student will commonly slip the first term after transferring to a four-year campus. There is also considerable evidence that after the first term, the academic performance of a transfer student rebounds and that he or she may ultimately perform as well as a "native" student on the four-year campus.

- Many researchers continue to assert that students who first attend a community college are disadvantaged if they ultimately decide to pursue a bachelor's degree. That is, while the two-year college may open up access to postsecondary education, it may not provide equal opportunity in leading to a four-year degree. This issue is one that continues to be debated.

- The persistence of transfer students at four-year institutions is not much studied. The data that exist in this area suggest that, as with native, residential students, "academic and social integration" into the structure of the four-year campus are key factors. One study indicated that student intent, academic performance, and academic satisfaction were all key in keeping a transfer student on track in pursuit of a bachelor's degree.

Appendix B

References Used in this Report

Adelman, C. (1989). *Using transcripts to validate institutional mission: The community college in the post-secondary experience of a generation.* Paper presented at the annual meeting of the Association of the Study of Higher Education, Atlanta, GA.

Adelman, C. (1992). *The way we are: The community college as American thermometer.* Washington, D.C.: U. S. Department of Education.

Adelman, C. (1998, October). What proportion of college students earn a degree? *AAHE Bulletin,* 7-9.

Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment.* Washington, D.C.: Office of Educational Research and Improvement, U.S. Department of Education.

Anglin, L. W., Davis, J. W., & Mooradian, P. W. (1995). Do transfer students graduate? A comparative study of transfer students and native university students. *Community College Journal of Research and Practice, 19,* 321-330.

Bach, S. K., Banks, M. T., Kinnick, M. K., Ricks, M. F., Stoering, J. M., & Walleri, R. D. (1999). *Case studies in transfer attendance within an urban postsecondary environment.* Paper presented at the Thirty-ninth Annual Forum of the Association of Institutional Research, Seattle, WA.

Banks, D. (1990). Why a consistent definition of transfer? *Community College Review, 18*(2), 47-53.

Barkley, S. M. (1993). A synthesis of recent literature on articulation and transfer. *Community College Review, 20*(4), 38-50.

Bean, J. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education, 12,* 155-187.

Berman, P., Curry, J., Nelson, B., & Weiler, D. (1990). *Enhancing transfer effectiveness.* Washington, D.C.: American Association of Community and Junior Colleges.

Borglum, K., & Kubala, T. (2000). Academic and social integration of community college students: A case study. *Community College Journal of Research and Practice, 24,* 567-276.

Brint, S., & Karabel, J. (1989). *The diverted dream: Community colleges and the promise of educational opportunity in America, 1900-1985.* New York: Oxford University Press.

Cohen, A., & Brawer, F. (1982). Transfer and attrition points of view: The persistent issues. *Community and Junior College Journal, 52*(4), 17-21.

Cohen, A. M. (1993). *Analyzing community college student transfer rates.* Paper presented at the annual meeting of the American Educational Research Association, Atlanta, GA.

de los Santos, J., Alfredo G., & Wright, I. (1990). Maricoa's swirling students. *Community, Technical, and Junior College Journal, 60*(6), 32-34.

Diaz, P. E. (1992). Effects of transfer on academic performance of community college students at the four-year institution. *Community/Junior College Quarterly, 16*, 279-291.

Dougherty, K. J. (1992). Community colleges and baccalaureate attainment. *Journal of Higher Education, 63*, 188-214.

Garcia, P. (1991). *Transfer rate: Some contrasts*.: Unpublished paper, California State University Office of the Chancellor, Division of Analytic Studies.

Glass, J. C., Jr., & Bunn, C. E. (1998). Length of time required to graduate for community college students transferring to senior institutions. *Community College Journal of Research and Practice, 22*, 239-263.

Graham, S., & Dallam, J. (1986). Academic probation as a measure of performance: Contrasting transfer students to native students. *Community/Junior College Quarterly, 10*, 23-33.

Grubb, W. N. (1991). The decline of community college transfer rates. *Journal of Higher Education, 62*, 194-222.

Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. *Journal of Experimental Education, 33*, 201-215.

House, J. D. (1989). The effect of time of transfer on academic performance of community college transfer students. *Journal of College Student Development, 30*, 144-147.

Johnson, N. T. (1987). Academic factors that affect transfer student persistence. *Journal of College Student Personnel, 24*, 323-329.

Kearney, G. W., Townsend, B. K., & Kearney, T. J. (1995). Multiple-transfer students in a public urban university: Background characteristics and interinstitutional movements. *Research in Higher Education, 36*, 323-344.

Kinnick, M. K., & Kempner, K. (1988). Beyond "front door" access: Attaining the bachelor's degree. *Research in Higher Education, 29*, 299-318.

Kinnick, M. K., Ricks, M. F., Bach, S., Walleri, R. D., Stoering, J., & Tapang, B. (1998). Student transfer between community colleges and a university in an urban environment. *Journal of Applied Research in the Community College, 5*(2), 89-99.

Knoell, D., & Medsker, L. (1964). *Articulation between two-year and four-year colleges*. Berkeley, CA: University of California, Center for the Study of Higher Education.

Laanan, F. S., & Sanchez, J. R. (1996). New ways of conceptualizing transfer rate definitions. In T. Rifkin (Ed.), *Transfer and articulation: Improving policies to meet new needs. New directions for community colleges, no. 96* (pp. 35-43). San Francisco: Jossey-Bass.

Oregon University System. (1999). *A plan for course and credit transfer between Oregon community colleges and Oregon University System institutions*. Eugene, OR: Author.

Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1986). Long-term persistence of two-year college students. *Research in Higher Education, 24*, 47-71.

Piland, W. E. (1995). Community college transfer students who earn bachelor's degrees. *Community College Review, 23*(3), 35-44.

Pincus, F., & Archer, E. (1989). *Bridges to opportunity: Are community colleges meeting the transfer needs of minority students?* New York: Academy of Educational Development and College Entrance Examination Board.

Rifkin, T. (1996). Transfer and articulation policies: Implications for practice. In T. Rifkin (Ed.), *Transfer and articulation: Improving policies to meet new needs. New directions for community colleges, no. 96* (pp. 77-85). San Francisco: Jossey-Bass.

Spicer, S. L., & Armstrong, W. B. (1996). Transfer: The elusive denominator. In T. Rifkin (Ed.), *Transfer and articulation: Improving policies to meet new needs. New directions for community colleges, no. 96* (pp. 45-54). San Francisco: Jossey-Bass.

St. Clair, K. L. (1994). Community college tranfer effectiveness: Rethinking enhancement efforts. *Community College Review, 21*(2), 14-21.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125.

Tinto, V. (1987). *Leaving college*. Chicago: University of Chicago Press.

Vaughn, G. B., & Templin, R. G. (1987). Measuring the community colleges' effectiveness. *Review of Higher Education, 10*, 235-245.

Washington State Board for Community and Technical Colleges. (1998). *Patterns underlying the current and future trends in transferring from community colleges to four-year public and indepdendent institutions* (Research Report No. 98-7). Olympia, WA: Author.

Appendix I.
Students Enrolled for Credit at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next (Unduplicated Count of All Students at All Levels)

by OUS Institution

	94-95/95-96	95-96/96-97	96-97/97-98	97-98/98-99
EOU	423	443	515	506
OIT	269	311	431	508
OSU	2,444	2,455	2,551	2,698
PSU	3,448	3,346	3,262	3,597
SOU	568	607	694	783
UO	2,192	2,083	2,299	2,357
WOU	1,015	1,010	1,068	1,146
Total	**10,359**	**10,255**	**10,820**	**11,595**

by Community College Campus

	94-95/95-96	95-96/96-97	96-97/97-98	97-98/98-99
BMCC	202	184	229	180
COCC	364	401	391	440
CGCC	72	104	90	78
CHEMEK	1,194	1,219	1,282	1,397
CLACK	792	688	625	808
CLAT	98	93	92	108
KCC			88	12
LCC	1,653	1,595	1,761	1,767
LBCC	1,120	1,154	1,139	1,100
MHCC	926	844	872	871
OCCC	49	56	44	34
PCC	2,942	2,977	3,087	3,430
RCC	387	389	538	635
SWOCC	171	174	177	224
TBCC	27	33	49	56
TVCC	148	114	146	136
UCC	214	230	210	218
Unknown				101
Total	**10,359**	**10,255**	**10,820**	**11,595**

Source: OCCURS/OUS Match Data

11/1/00
OUS2CC-1.xls

Appendix II.
Students Completing a Postsecondary Program at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next

by OUS Institution

	94-95/95-96*	95-96/96-97	96-97/97-98	97-98/98-99
EOU	54	80	74	76
OIT	31	51	40	67
OSU	242	283	284	314
PSU	476	504	492	518
SOU	91	95	94	107
UO	235	264	269	254
WOU	187	199	205	239
Total	**1,316**	**1,476**	**1,458**	**1,575**

by Community College Campus

	94-95/95-96*	95-96/96-97	96-97/97-98	97-98/98-99
BMCC	52	63	45	56
COCC	59	89	70	82
CGCC	7	8	13	8
CHEMEK	158	211	214	235
CLACK	98	124	99	133
CLAT	11	11	10	29
KCC			2	12
LCC	169	175	162	184
LBCC	91	112	116	147
MHCC	125	149	150	165
OCCC	5	3	15	0
PCC	369	353	350	346
RCC	66	53	67	58
SWOCC	21	26	53	36
TBCC	4	6	4	8
TVCC	21	36	35	18
UCC	60	57	53	58
Total	**1,316**	**1,476**	**1,458**	**1,575**

*Fall term only

Source: OCCURS/OUS Match Data

Appendix III.
Students Completing an AA/OT at an Oregon Community College One Year and then Enrolled at an OUS Institution The Next (by Community College)

	94-95/95-96	% of 94-95 AA/OTs	95-96/96-97	% of 95-96 AA/OTs	96-97/97-98	% of 96-97 AA/OTs	97-98/98-99	% of 97-98 AA/OTs
BMCC	46	48%	51	51%	38	55%	44	49%
COCC	61	40%	76	64%	61	51%	67	53%
CGCC	8	53%	4	29%	4	33%	6	35%
CHEMEK	140	47%	152	55%	159	55%	192	57%
CLACK	88	63%	113	57%	86	56%	111	58%
CLAT	3	10%	0	0%	7	54%	16	53%
KCC	na	na	na	na	0	0%	0	0%
LCC	142	71%	144	64%	139	67%	137	60%
LBCC	61	59%	54	59%	66	57%	77	64%
MHCC	8	3%	89	55%	119	55%	128	53%
OCCC	3	33%	2	40%	14	67%	0	0%
PCC	217	79%	297	64%	147	61%	121	62%
RCC	28	54%	23	35%	51	61%	46	55%
SWOCC	26	42%	21	44%	45	67%	30	42%
TBCC	4	50%	1	50%	2	40%	1	33%
TVCC	20	17%	34	30%	32	23%	14	14%
UCC	40	51%	40	44%	45	57%	47	51%
Total	**895**	**48%**	**1,101**	**56%**	**1,015**	**55%**	**1,037**	**54%**

51

52

Source: OCCURS/OUS Match Data

Appendix IV.
Average Credits Transferred by AA/OT Recipients from an Oregon Community College Who Then Enrolled at an OUS Institution the Next Year

by OUS Institution

	95-96/96-97	96-97/97-98
EOU	91	103
OIT		101
OSU	96	101
PSU	97	96
SOU	98	93
UO	96	97
WOU	101	101
Average	**98**	**99**

by Community College Campus

	95-96/96-97	96-97/97-98
BMCC	99	94
COCC	95	103
CGCC	99	99
CHEMEK	97	101
CLACK	96	100
CLAT		116
KCC		
LCC	98	95
LBCC	101	101
MHCC	97	96
OCCC	97	92
PCC	96	98
RCC	100	103
SWOCC	96	89
TBCC	98	105
TVCC	96	98
UCC	102	100
Average	**98**	**99**

Source: OCCURS/OUS Match Data

Appendix V.
Lower-Division Collegiate Students Enrolled at an Oregon Community College One Year and then Enrolled at an OUS Institution the Next

by OUS Institution

	96-97/97-98	97-98/98-99
EOU	329	326
OIT	180	231
OSU	1,782	1,808
PSU	2,435	2,655
SOU	456	530
UO	1,796	1,862
WOU	789	790
Total	**7,767**	**8,202**

by Community College Campus

	96-97/97-98	Total LDC Students	% Enrolling in OUS	97-98/98-99	Total LDC Students	% Enrolling in OUS
BMCC	96	669	14%	67	523	13%
COCC	362	3,116	12%	397	3,517	11%
CGCC	70	580	12%	65	577	11%
CHEMEK	1,098	8,662	13%	851	5,706	15%
CLACK	410	3,004	14%	618	4,221	15%
CLAT	53	607	9%	56	543	10%
KCC	0	2	0%	21	80	26%
LCC	1,457	7,886	18%	1,453	8,416	17%
LBCC	562	2,607	22%	541	2,599	21%
MHCC	641	5,660	11%	773	6,068	13%
OCCC	39	320	12%	47	500	9%
PCC	2,290	16,423	14%	2,511	18,574	14%
RCC	278	1,652	17%	361	2,186	17%
SWOCC	103	867	12%	102	1,068	10%
TBCC	19	209	9%	53	265	20%
TVCC	105	1,257	8%	108	1,289	8%
UCC	184	1,374	13%	178	1,283	14%
Total	**7,767**	**54,895**	**14%**	**8,202**	**57,415**	**14%**

Source: OCCURS/OUS Match Data

11/1/00
OUS2CC-5.xls

Appendix VI.
Students Enrolled at an Oregon Community College One Year and then Enrolled at an OUS Institution The Next (by Race)

97-98/98-99

	Asian	Black	Caucasian	Hispanic	Native American	International	Unknown	Total
BMCC	10	0	142	6	6	1	15	180
COCC	6	0	356	12	7	3	56	440
CGCC	3	0	68	2	0	1	4	78
CHEMEK	69	8	1,058	66	24	25	147	1397
CLACK	41	8	659	23	10	3	64	808
CLAT	8	0	86	5	1	0	8	108
KCC	0	0	10	0	2	0	0	12
LCC	102	24	1,281	67	30	93	170	1767
LBCC	51	14	875	29	18	23	90	1100
MHCC	84	11	659	24	4	8	81	871
OCCC	0	0	27	0	1	0	6	34
PCC	425	78	2,297	97	33	52	448	3430
RCC	9	6	542	23	5	2	48	635
SWOCC	5	1	174	11	13	3	17	224
TBCC	1	1	48	0	1	0	5	56
TVCC	6	1	105	7	4	0	13	136
UCC	3	1	185	7	3	0	19	218
Unknown	3	0	81	4	4	2	7	101
Total	**826**	**153**	**8,653**	**383**	**166**	**216**	**1,198**	**11,595**

97-98/98-99 CC to OUS Students								
% Total	7.1%	1.3%	74.6%	3.3%	1.4%	1.9%	10.3%	100.0%
All 97-98 CC Students								
% Total	2.8%	1.3%	63.4%	5.3%	1.4%	2.0%	23.8%	100.0%
All 98-99 OUS Students								
% Total	6.1%	1.5%	73.0%	3.1%	1.3%	5.8%	9.1%	100.0%

All 98 Public Oregon HS Grads					
% Total	3.9%	1.8%	88.3%	4.6%	1.4%

95-96/96-97 CC to OUS Students								
% of Total	5.5%	1.0%	74.5%	2.6%	0.9%		15.6%	100.0%
All 95-96 CC Students								
% Total	2.8%	1.3%	67.5%	5.3%	1.3%		21.8%	100.0%
All 96-97 OUS Students								
% Total	6.1%	1.6%	73.2%	3.0%	1.3%	6.5%	8.4%	100.0%

Source: OCCURS/OUS Match Data
Oregon University System IRS
Oregon Community College OCCURS
Oregon Department of Education report on 1998 High School Completers, Oregon Public Schools

11/1/00
OUS2CC-6.xls

Appendix VII.

Unduplicated Count of Undergraduate Students Enrolled at an Oregon Community College One Year and then Enrolled at an OUS Institution The Next [by Gender and Residency (Fee) Status]

97-98/98-99

	Female		Male		Total	Non-Resident		Resident	
	N	%	N	%		N	%	N	%
BMCC	82	56.6%	63	43.4%	145	8	5.5%	137	94.5%
COCC	185	54.9%	152	45.1%	337	16	4.7%	321	95.3%
CGCC	36	67.9%	17	32.1%	53	1	1.9%	52	98.1%
CHEMEK	675	57.3%	504	42.7%	1,179	41	3.5%	1,138	96.5%
CLACK	346	53.9%	296	46.1%	642	6	0.9%	636	99.1%
CLAT	49	55.1%	40	44.9%	89	7	7.9%	82	92.1%
KCC	7	70.0%	3	30.0%	10	0	0.0%	10	100.0%
LCC	743	51.4%	703	48.6%	1,446	190	13.1%	1,256	86.9%
LBCC	431	48.4%	460	51.6%	891	48	5.4%	843	94.6%
MHCC	410	56.1%	321	43.9%	731	14	1.9%	717	98.1%
OCCC	22	84.6%	4	15.4%	26	1	3.8%	25	96.2%
PCC	1,315	52.9%	1,173	47.1%	2,488	88	3.5%	2,400	96.5%
RCC	285	61.8%	176	38.2%	461	11	2.4%	450	97.6%
SWOCC	80	48.8%	84	51.2%	164	4	2.4%	160	97.6%
TBCC	37	69.8%	16	30.2%	53	0	0.0%	53	100.0%
TVCC	74	68.5%	34	31.5%	108	14	13.0%	94	87.0%
UCC	106	54.6%	88	45.4%	194	2	1.0%	192	99.0%
UNKNOWN	49	60.5%	32	39.5%	81	1	1.2%	80	98.8%
Total	4,932	54.2%	4,166	45.8%	9,098	452	5.0%	8,646	95.0%
Continuing	16,692	51.2%	15,936	48.8%	32,628	6,001	18.4%	26,627	81.6%
First-time Freshmen	3,737	52.8%	3,338	47.2%	7,075	1,686	23.8%	5,389	76.2%
Other Transfers**	2,327	54.8%	1,917	45.2%	4,244	1,489	35.1%	2,755	64.9%
Total	22,756	51.8%	21,191	48.2%	43,947	9,176	20.9%	34,771	79.1%

**Other Transfers	In-State	Out-of-State	Unknown	Number of Institutions
4,244	1,274	1,958	1,012	426

58

59

Source: OCCURS/OUS Match Data

11/1/00
OUS2CC-7.xls

Appendix VIII.
Transfer Students Taking Remedial Mathematics:
Unduplicated Count of Undergraduate Students Enrolled at an Oregon Community College One Year and then at an OUS Institution the Next (Compared to Other Undergraduates)

	95-96/96-97			96-97/97-98			97-98/98-99		
	Total N	Taking Remedial Math	% Taking Remedial Math	Total N	Taking Remedial Math	% Taking Remedial Math	Total N	Taking Remedial Math	% Taking Remedial Math
BMCC	144	1	0.7%	165	2	1.2%	145	2	1.4%
COCC	267	3	1.1%	298	2	0.7%	337	3	0.9%
CGCC	36	0	0.0%	71	1	1.4%	53	0	0.0%
CHEMEK	685	2	0.3%	1,021	5	0.5%	1,179	7	0.6%
CLACK	488	0	0.0%	466	1	0.2%	642	1	0.2%
CLAT	53	1	1.9%	74	0	0.0%	89	0	0.0%
KCC	na	0		na	0		10	3	
LCC	1,121	13	1.2%	1,376	8	0.6%	1,446	18	1.2%
LBCC	859	0	0.0%	920	4	0.4%	891	4	0.4%
MHCC	494	3	0.6%	687	6	0.9%	731	6	0.8%
OCCC	30	1	3.3%	22	1	4.5%	26	0	0.0%
PCC	1,935	9	0.5%	2,189	15	0.7%	2,488	17	0.7%
RCC	231	8	3.5%	391	6	1.5%	461	10	2.2%
SWOCC	110	0	0.0%	138	0	0.0%	164	0	0.0%
TBCC	16	1	6.3%	41	1	2.4%	53	2	3.8%
TVCC	69	1	1.4%	114	4	3.5%	108	1	0.9%
UCC	153	3	2.0%	186	1	0.5%	194	2	1.0%
UNKNOWN				72	8	11.1%	81	6	7.4%
Total	**6,691**	**46**	**0.7%**	**8,231**	**65**	**0.8%**	**9,098**	**82**	**0.9%**
First-time Freshmen	8,305	175	2.1%	6,987	182	2.6%	7,075	216	3.1%
Continuing							32,628	115	0.4%
Other Transfers							4,244	53	1.2%
Other Transfers and Continuing				36,349	170	0.5%			

Source: OCCURS/OUS Match Data

Appendix IX.

Academic Performance (in all OUS Courses) of Students Enrolled at a Community College One Year and then Enrolled at an OUS Institution the Next

(by Comm College, Compared to First-time Freshmen and Other Undergraduates)

	95-96/96-97		96-97/97-98		97-98/98-99	
	N	GPA	N	GPA	N	GPA
BMCC	145	2.89	157	2.88	133	2.92
COCC	289	3.08	281	3.05	323	2.96
CGCC	66	2.86	68	2.97	48	2.79
CHEMEK	940	2.87	1,012	2.89	1,150	2.88
CLACK	509	2.93	460	2.90	627	2.94
CLAT	73	3.02	71	2.93	84	2.90
KCC					10	2.47
LCC	1,224	2.86	1,354	2.89	1,429	2.90
LBCC	903	2.81	909	2.81	884	2.81
MHCC	591	2.88	676	2.90	715	2.95
OCCC	34	2.93	21	2.93	25	2.90
PCC	2,030	2.96	2,156	3.01	2,429	3.02
RCC	290	2.96	369	2.99	433	3.07
SWOCC	139	2.94	135	2.93	159	2.87
TBCC	29	2.75	37	2.83	51	2.87
TVCC	76	3.02	100	2.82	99	2.99
UCC	208	2.88	184	2.80	189	2.91
UNKNOWN			72	2.72	77	2.80
Total	**7,546**	**2.91**	**8,062**	**2.92**	**8,865**	**2.94**
First-time Freshmen			**6,910**	**2.78**	**6,988**	**2.80**
Continuing					**31,906**	**3.02**
Other Transfers					**4,070**	**3.06**
Other Transfers and Continuing			**35,784**	**3.02**		
Native Students	**24,564**	**2.92**				

62

63

Source: OCCURS/OUS Match Data

11/1/00
OUS2CC-9.xls

Appendix X.
Academic Performance (in OUS Math Courses) of Students Enrolled at a Community College One Year and then Enrolled at an OUS Institution the Next (Compared to First-time Freshmen and Others)

	96-97/97-98		97-98/98-99	
	N	GPA	N	GPA
College Algebra				
OR Community College Transfers	1,032	2.37	1,204	2.50
First-time Freshmen	2,519	2.36	2,460	2.35
Continuing			3,050	2.54
Other Transfers			514	2.68
Other Transfers and Continuing	3,491	2.47		
All	7,042	2.42	7,228	2.48
Pre-Calculus				
OR Community College Transfers	943	2.37	1,018	2.35
First-time Freshmen	1,452	2.67	1,559	2.62
Continuing			2,349	2.31
Other Transfers			441	2.64
Other Transfers and Continuing	2,599	2.46		
All	4,994	2.51	5,367	2.43
Calculus				
OR Community College Transfers	654	2.49	733	2.55
First-time Freshmen	1,055	2.70	1,063	2.75
Continuing			1,758	2.33
Other Transfers			304	2.67
Other Transfers and Continuing	1,931	2.31		
All	3,640	2.47	3,858	2.53
Math Beyond Calculus				
OR Community College Transfers	348	2.72	427	2.64
First-time Freshmen	191	2.78	261	2.80
Continuing			1,307	2.58
Other Transfers			143	2.71
Other Transfers and Continuing	1,399	2.74		
All	1,938	2.74	2,138	2.63
All Math Courses				
OR Community College Transfers	2,608	2.48	2,941	2.50
First-time Freshmen	4,129	2.51	4,152	2.51
Continuing			7,875	2.49
Other Transfers			1,234	2.68
Other Transfers and Continuing	8,859	2.53		
All	15,596	2.52	16,202	2.51

Source: OCCURS/OUS Match Data

11/1/00
OUS2CC-10.xls

Appendix XI.
Academic Performance (by Disciplinary Area) of Students Enrolled at a Community College One Year and then Enrolled at an OUS Institution the Next (Compared to First-time Freshmen and Others)

	96-97/97-98		97-98/98-99	
	N	GPA	N	GPA
Arts & Letters				
OR Community College Transfers	4,342	3.01	4,702	3.03
First-time Freshmen	5,110	2.88	4,937	2.88
Continuing			17,011	3.14
Other Transfers			2,295	3.16
Other Transfers and Continuing	19,858	3.14		
All	29,310	3.07	28,945	3.08
Sciences				
OR Community College Transfers	4,267	2.69	4,553	2.72
First-time Freshmen	4,768	2.54	4,803	2.59
Continuing			16,235	2.81
Other Transfers			1,893	2.84
Other Transfers and Continuing	18,352	2.82		
All	27,387	2.75	27,484	2.76
Social Sciences				
OR Community College Transfers	5,301	2.88	5,766	2.90
First-time Freshmen	5,277	2.54	5,198	2.59
Continuing			20,223	2.96
Other Transfers			2,561	3.00
Other Transfers and Continuing	22,869	2.94		
All	33,447	2.88	33,748	2.91
Foreign Languages				
OR Community College Transfers	966	3.05	1,047	3.07
First-time Freshmen	1,149	3.07	1,185	3.12
Continuing			3,635	3.12
Other Transfers			512	3.25
Other Transfers and Continuing	4,229	3.13		
All	6,344	3.10	6,379	3.12
English Composition				
OR Community College Transfers	1,278	3.05	1,333	3.10
First-time Freshmen	4,083	3.00	4,054	3.02
Continuing			4,799	3.17
Other Transfers			699	3.30
Other Transfers and Continuing	5,750	3.15		
All	11,111	3.07	10,885	3.10

Source: OCCURS/OUS Match Data

11/1/00
OUS2CC-11.xls

Appendix XII.
New Community College Transfers to Public Institutions in Western States by Year
1994-95 to 1999-00

State and Sector	94-95	95-96	96-97	97-98	98-99	99-00
Oregon University System (All transfers)	N/A	10,359	10,255	10,820	11,595	N/A
Oregon University System (Admitted transfers)	3,259	3,330	3,158	3,327	3,687	3,590
University of California	10,929	10,886	10,492	10,210	10,161	N/A
California State University	46,912	48,688	48,349	45,546	44,989	N/A
Washington State 4-year Publics	9,509	9,391	9,811	8,785	9,185	N/A

Sources:
California Postsecondary Education Commission
Washington State Board for Community and Technical Colleges
Oregon University System

Appendix XIII.
Students Enrolled BOTH at an OUS Institution and an Oregon Community College During the 1997-98 Academic Year (by Term, including Credit Hours Taken)

	Summer 97	Fall 97	Winter 98	Spring 98
Co-Enrolled Students	429	1,079	1,139	1,109
Total Credit Hours CC	1,730	1,100	5,480	5,730
Total Credit Hours OUS	2,665	8,321	9,275	8,501

68

69

Source: OCCURS/OUS Match Data

11/1/00
OUS2CC-13.xls

Appendix XIV.
Retention and Graduation of First-time Freshmen and Community College Transfers: 1993-94 Entering Cohort, Systemwide Totals Including Students of Color (Includes Students Transferring within OUS After Initial Enrollment)

		1994		1995		1996		1997		1998		1999	
		N	%	N	%	N	%	N	%	N	%	N	%
Freshmen													
	Continuing	4,896	74.1	4,243	63.0	4,043	60.1	2,099	31.2	692	10.3	365	5.4
	Graduated	0	0.0	6	0.1	92	1.4	1,828	27.2	3,168	47.1	3,554	52.8
	Stopped Out	1,746	25.9	2,483	36.9	2,597	38.6	2,805	41.7	2,872	42.7	2,813	41.8
	Total	6,732	100.0	6,732	100.0	6,732	100.0	6,732	100.0	6,732	100.0	6,732	100.0
Transfer													
	Continuing	2,112	82.0	1,406	54.6	560	21.7	203	7.9	91	3.5	45	1.7
	Graduated	19	0.7	527	20.5	1,279	49.7	1,626	63.1	1,751	68.0	1,797	69.8
	Stopped Out	445	17.3	643	25.0	737	28.6	747	29.0	734	28.5	734	28.5
	Total	2,576	100.0	2,576	100.0	2,576	100.0	2,576	100.0	2,576	100.0	2,576	100.0
Black													
	Continuing	26	92.9	19	67.9	6	21.4	3	10.7	0	0.0	1	3.6
	Graduated	0	0.0	4	14.3	13	46.4	14	50.0	15	53.6	15	53.6
	Stopped Out	2	7.1	5	17.9	9	32.1	11	39.3	13	46.4	12	42.9
	Total	28	100.0	28	100.0	28	100.0	28	100.0	28	100.0	28	100.0
Native American													
	Continuing	35	77.8	29	64.4	10	22.2	6	13.3	0	0.0	0	0.0
	Graduated	0	0.0	7	15.6	19	42.2	24	53.3	26	57.8	26	57.8
	Stopped Out	10	22.2	9	20.0	16	35.6	15	33.3	19	42.2	19	42.2
	Total	45	100.0	45	100.0	45	100.0	45	100.0	45	100.0	45	100.0
Asian													
	Continuing	126	88.1	92	64.3	45	31.5	16	11.2	5	3.5	2	1.4
	Graduated	0	0.0	18	12.6	63	44.1	90	62.9	102	71.3	105	73.4
	Stopped Out	17	11.9	33	23.1	35	24.5	37	25.9	36	25.2	36	25.2
	Total	143	100.0	143	100.0	143	100.0	143	100.0	143	100.0	143	100.0
Hispanic													
	Continuing	45	83.3	26	48.1	11	20.4	4	7.4	4	7.4	2	3.7
	Graduated	0	0.0	14	25.9	24	44.4	32	59.3	34	63.0	34	63.0
	Stopped Out	9	16.8	14	25.9	19	35.2	18	33.3	16	29.6	18	33.3
	Total	54	100.0	54	100.0	54	100.0	54	100.0	54	100.0	54	100.0
Caucasian													
	Continuing	1,648	81.3	1,107	54.6	432	21.3	158	7.8	71	3.5	34	1.7
	Graduated	18	0.9	409	20.2	1,013	50.0	1,287	63.5	1,384	68.2	1,422	70.1
	Stopped Out	362	17.9	512	25.2	583	28.7	583	28.7	573	28.3	572	28.2
	Total	2,028	100.0	2,028	100.0	2,028	100.0	2,028	100.0	2,028	100.0	2,028	100.0

Source: OUS Institutional Research Services

11/1/00
OUS2CC-14.xls